

PUBLIC HEALTH REPORTS

VOL. 30

OCTOBER 22, 1915

No. 43

MARRIAGE OF TUBERCULOUS PERSONS.

A JUDICIAL DECISION ANNULING THE MARRIAGE OF A PERSON WHO CONCEALED THE FACT THAT HE WAS SUFFERING FROM TUBERCULOSIS.

The courts have held in a number of instances that the marriage of a person suffering from a venereal disease might be annulled at the instance of the other party to the marriage when the existence of the disease had been concealed. The Supreme Court of the State of New York, in *Sobol v. Sobol* (p. 3175 of this issue of the Public Health Reports) carries this legal principle one step farther.

The defendant (the husband) had been treated for tuberculosis and knew that he was suffering from the disease. He concealed this fact from his fiancée, and explained certain symptoms by saying that he was suffering from a cold. After the marriage his wife discovered the nature of his illness and brought suit to annul the marriage. No issue resulted from the union.

The court decided that, in view of the possible serious consequences of such a marriage to the wife, to the children if any should be born, and to the community, the marriage contract should be annulled. The legal basis of the decision was the fraud of the defendant in concealing and misrepresenting the condition of his health.

THE PREVENTION OF PELLAGRA.

A TEST OF DIET AMONG INSTITUTIONAL INMATES.

By JOSEPH GOLDBERGER, surgeon; C. H. WARING, assistant surgeon, and DAVID G. WILLETS, assistant epidemiologist, United States Public Health Service.

INTRODUCTION.

(By GOLDBERGER.)

In a paper published June 26, 1914, attention was called to certain epidemiological observations relating to pellagra which appeared inexplicable on any theory of communicability. These observations showed that, at certain institutions at which pellagra was either epidemic or had long been endemic among the inmates, the nurses

and attendants, drawn from the class economically and socially identical with that most afflicted in the population at large, appeared uniformly to be immune, although living in the same environment and under the same conditions as did the inmates. Neither "contact" nor insect transmission seemed capable of explaining such a phenomenon. It was suggested that the explanation was to be found in a difference, which was believed to exist, in the diet of the two groups of residents.

From a study of the dietaries of certain institutions in which pellagra prevailed the impression has been gained that cereals and vegetables formed a much greater proportion in them than they did in the dietaries of well-to-do people; that is, people who as a class are practically exempt from pellagra. It was suggested, therefore, that it might be well to attempt to prevent the disease by reducing the cereals, vegetables, and canned foods and increasing the fresh animal foods, such as fresh meats, eggs, and milk; in other words, by providing those subject to pellagra with a diet such as that enjoyed by well-to-do people, who as a group are practically free from the disease.

In planning the field studies for 1914 it was proposed, with the approval of the bureau and the department, to put this suggestion to a practical test.

In accordance with the original plan to carry on the test for at least two years, the experiment is still in progress. The results so far recorded are so striking, however, and of such profound practical importance that they are reported at this time.

In planning the test of the preventive value of diet it was decided to take advantage of the universally recognized fact that "normally" pellagra tends to recur in the individual from year to year.

In order to obtain significant and perhaps decisive results, it was decided to submit to the test as large a number of individuals as possible at some institution where the disease was endemic. After some search an orphanage with a high incidence of pellagra among its residents was found at Jackson, Miss.

As a preliminary, a study was made of the epidemiology of the disease at this institution, and the singular fact was very quickly discovered that the disease was practically exclusively confined to those between 6 and 12 years of age. After a detailed inquiry the only explanation that could be found for the remarkable restriction of the disease to this group was a difference in the diet of the resident groups.

In the diet of the affected group, as contrasted with that of the exempt groups, there was noted a disproportionately small amount of lean meat or other animal protein food, so that the vegetable component, in which biscuits (wheat flour), grits, meal (corn), and sirup

were prominent and legumes relatively inconspicuous, formed a disproportionately large part of the ration. Inquiry at other institutions developed analogous conditions, and as a whole the findings, in the light of the recent advances in our knowledge of beriberi, very strongly suggested the idea that the disease was dependent upon a diet that was for some reason faulty and that this fault was in some way either prevented or corrected by including in the diet larger proportions of the fresh animal protein foods. These findings not only confirmed the writer's previous tentative deductions but helped in defining these deductions more clearly, and moreover made it possible more definitely to formulate plans, which were temporarily broadened to include a test of diet in the treatment as well as in the prevention of the disease.

At the suggestion of the writer, Dr. W. F. Lorenz, special expert, United States Public Health Service, who was at that time studying the psychiatric manifestations of pellagra at the Georgia State Sanitarium, treated a series of 27 cases in the insane at that asylum exclusively by diet. Considering the class of cases with which he was dealing, his results, as well as those of Dr. D. G. Willets, who for a time continued the work begun by Lorenz, were notably favorable.

When the various recent methods of treatment, each warmly advocated by its author, are critically reviewed in the light of the test made by Lorenz and by Willets, one can not fail to be struck by the fact that the one thing they all appear to have in common is the so-called "nutritious" diet, and it is difficult to escape the conclusion that it is to this single common factor that the marked success that is usually claimed for the "treatment" should properly be assigned.

It is of much interest to note that fully 50 years ago Roussel (Roussel 1866, pp. 529-530), on the basis of long experience and from a critical review of the literature of his day, came to precisely the same conclusion. This is so much to the point that it is quoted herewith: "Without dietetic measures *all remedies fail*.¹ * * * when drugs and good food are simultaneously employed it is to the latter that the curative action belongs, the former exercises simply an adjuvant action and is without proved efficacy except against secondary changes or accidental complications."

Important as the treatment of the individual case may be, it seemed to the writers of much more fundamental importance to apply their resources to the problem of prevention. Arrangements were therefore made to extend the preventive study to a second orphanage and later to two groups of insane at the Georgia State Sanitarium.

¹ Italics are Roussel's.

ORPHANAGE STUDY.

(By GOLDBERGER and WARING.)

Both the orphanages at which the value of diet in the prevention of pellagra has been tested are located in Jackson, Miss.

The first of these to be considered will be spoken of as orphanage "M. J." Cases of pellagra have been recognized at this institution every spring for several years. During the spring and summer of 1914, up to September 15, 79 cases of the disease were observed in children at this orphanage. Although several of these were known to have had pellagra on admission or had developed it a short time after admission, a number appeared to have developed the disease for the first time after considerable periods of residence at this institution. The factor or factors causing pellagra and favoring its recurrence seemed, therefore, to be operative at this orphanage.

The second of the orphanages, which will be referred to as orphanage "B. J.," is located about half a mile east of orphanage "M. J." Here, as at "M. J.," cases of pellagra have been recognized every spring for several years. The writers are informed by the superintendent that a condition which he can not distinguish from that now called pellagra has occurred every year among the children ever since his connection with the institution, a matter of some 12 to 13 years. From his description it is believed that there can be but little doubt that pellagra has prevailed at this institution almost, if not quite, since its foundation in 1897.

During the spring and summer of 1914, up to September 15, there were observed among the children at this institution 130 cases of pellagra. As at "M. J.," some of these were in recent admissions; a large proportion, however, occurred in long-time residents.

There appears to be little if any reason to doubt that the factor or factors causing the disease and favoring its recurrence have been operative at this institution for many years.

At both institutions the hygienic and sanitary conditions found left much to be desired. Both were much overcrowded.

The drinking water at each is drawn from the public supply.

One is equipped with a water carriage sewerage system connected with that of the city; the other has the unscreened surface privy type of sewage disposal and, incidentally, we found here a great deal of soil pollution.

At the very outset it was requested that no change be made in hygienic and sanitary conditions, and it is believed that these have remained as they were found and as they have been for several years.

Since about the middle of September, 1914, the diet at both orphanages has in certain respects been supplemented by the Public

Health Service. At both institutions a very decided increase was made in the proportion of the fresh animal and of the leguminous protein foods.

The milk supply was greatly increased. Provision was made to give every child under 12 years a cup of about 7 ounces of milk at least twice a day. Those under 6 years had it three times a day. Until the spring of 1915 the milk used was all fresh sweet milk. In April of this year buttermilk was added to the diet. This was served at first only on alternate days to those over 12 years of age; later, when a sufficient supply became available, it was served daily at the midday meal to all.

Eggs, except in cooking or for the sick, had previously not entered into the regular diet of these children. The writers prescribed at least one egg at the morning meal for every child under 12 years of age. It had been the custom to serve the children with fresh meat but once a week; under the writers' direction it was increased to three or four times a week.

Beans and peas, which had been conspicuous in the diet only during the summer and fall, were made an important part of nearly every midday meal at all seasons.

The carbohydrate component of the institution diets was also modified. The breakfast cereal was changed from grits to oatmeal, partly because it was believed to be an advantage to reduce the corn element and in part because it was believed that the oatmeal would favor the increased consumption of milk. The corn element, though much reduced, was not wholly excluded. Corn bread was allowed all children once a week and grits to those over 12 years of age once or twice a week. Cane sirup or molasses, which it had been customary to serve freely at two or three meals each day, was for some weeks entirely excluded, and later allowed in small amounts at only three or four evening meals a week. The object in this was to reduce the proportion of the carbohydrate element. A more detailed idea of the character of the diet furnished may be obtained by reference to the menus herewith submitted.

Orphanage, M. J.—January 1 to 7, 1915.

BREAKFAST.

All ages:

Oatmeal, with sugar and milk, biscuit with butter, daily. Frankfurters (boiled), one morning, in place of fried bacon or eggs.

Matrons and "big" boys:

Fried bacon on six mornings.

All under 12 years:

Milk (about 7 ounces) as a beverage, daily; one egg (scrambled, fried, or boiled), six mornings.

DINNER.

January 1:

All—

Vegetable soup (tomatoes, Irish potatoes,
corn, onions, rice).
Baked sweet potatoes.
Corn bread.
Light bread.

Matrons—

Biscuit.

January 2:

All—

Navy beans (boiled).
Baked sweet potatoes.
Light bread.
Pie (blackberry, peach).

Matrons—

Hot biscuit.
Corn muffins.

January 3:

All—

Roast beef.
Lima beans (boiled).
Layer cake.

Matrons—

Baked sweet potatoes.
Boiled rice custard.
Blackberry preserves.

January 4:

All—

Vegetable soup (tomatoes, rice, onions,
navy beans).
Hash for three tables.
Baked sweet potatoes.
Boiled navy beans.
Light bread.

January 4—Continued.

Matrons—

Corn bread.
Hot biscuit.

January 5:

All—

Vegetable soup, (tomatoes, rice, onions).
Roast beef.
Baked sweet potatoes.
Boiled lima beans.
Light bread.

Matrons—

Biscuits, corn bread.

January 6:

All—

Roast beef.
Boiled navy beans.
Baked sweet potatoes.
Blackberry pie (five tables).
Stewed pears (three tables).
Light bread.

Matrons—

Biscuit.
Corn muffins.

January 7:

All—

Vegetable soup (tomatoes, rice, onions).
Boiled frankfurters.
Boiled lima beans.
Baked sweet potatoes.
Light bread.

Matrons—

Biscuit.
Corn muffins.

N. B.—Children under 6 years of age received about 7 ounces of milk each daily in addition to the above.

SUPPER.

January 1:

All—

Stewed prunes or pumpkin.
Light bread.

Over 12—

Boiled grits.

January 2:

All—

Sirup.
Light bread.

Over 12—

Boiled rice.
Fried bacon.

January 3:

All—

Cakes.
Light bread.
Milk.

January 4:

All—

Stewed apples.
Light bread.

Over 12—

Fried bacon.
Boiled rice.

January 5:

All—

Light bread.
Sirup.

Over 12—

Boiled grits.
Fried fresh pork.

January 6:

All—

Light bread.
Stewed apples.

Over 12—

Beef hash.
Boiled rice.

January 7:

All—

Light bread.
Sirup.
Milk.

Over 12—

Fried bacon.
Boiled rice.

N. B.—All under 12 years received about 7 ounces of milk daily in addition to the bread and stewed fruit or sirup. The matrons and teachers were served with hot biscuits daily in addition to the other articles noted.

Results.

Orphanage "M. J."—Of the 79 cases of pellagra observed at "M. J." during the spring and summer of 1914, not less than 67 completed at least the anniversary date of their attacks under the observation of the writers. Of these not less than 9 have had at least 2 annual attacks. In none of the 67, following the change in diet, has there been observed so far this year any recognizable evidence of a recurrence, nor have the writers been able to detect any evidence justifying a diagnosis of pellagra in any of the nonpellagrins residents, numbering 99 children and adults, who have been continuously under observation for at least one year. In other words, barring recent admissions, there has been no pellagra at this institution this year.

Orphanage "B. J."—Of the 130 cases of pellagra observed in the children at "B. J." during the summer of 1914, not less than 105 have completed at least the anniversary date of last year's attack under the writers' observation. Not less than 14 of these have histories of at least 2 successive annual attacks. In only 1 of these 105 pellagrins, following the above change in diet, has there, so far this year, been recognized evidence justifying the diagnosis of a recurrence.

Of the residents of this orphanage that did not present any definite evidence of pellagra in 1914, 69 have remained continuously under observation for at least a year; none has thus far developed recognizable evidence of the disease this year. Recent admissions aside, there has been but one case of pellagra at this institution this year.

ASYLUM STUDY.

(By GOLDBERGER and WILLETS.)

Through the courtesy and with the very helpful cooperation of the board of trustees, superintendent, clinical director, and staff of the Georgia State Sanitarium, two wards were turned over to the writers for a test of the value of diet in the prevention of pellagra. To this asylum, the largest in the South, there are admitted annually a considerable number of cases of pellagra. Besides this, cases of institutional origin are of frequent occurrence. This asylum must, therefore, be regarded as an endemic focus of the disease.

Of the two wards placed at our disposal one is in the colored and the other in the white female service; the former was organized in October, the latter in December, 1914.

Each ward has a capacity of about 50 beds. To each there were admitted about 40 adult pellagrins who had had attacks at one time or another during 1914. In organizing the wards and selecting our patients the list of female pellagrins that at that time were known to have had attacks in 1914 was practically exhausted. In selecting

the patients only one condition was observed, namely, that the patient should, if possible, be of such a mental type as would give the highest degree of probability of remaining under observation for at least a year. In consequence a very considerable proportion of them were of a much deteriorated, untidy class. There were, nevertheless, unavoidably included several in whom the mental condition improved to such a degree that we felt obliged to permit them to go when a request for their discharge was made. Not all, therefore, of our original patients remained under observation long enough to be included in the present discussion.

Very few of the patients presented active symptoms on admission to the writers' wards, the object so far as this test was concerned being not a study of the treatment of active symptoms but the prevention of recurrences. A very considerable number of the patients, however, presented marked residuals of a recent attack. Many of the colored patients had been dieted by either Dr. Lorenz or Dr. Willets during the acute stage of their attacks in the same ward prior to its organization for the purpose under consideration. A number of the white females had been dieted during the acute stage by Dr. Y. A. Lyttle, of the asylum staff, and formed part of a series reported on by him at the meeting of the Southern Medical Association in November, 1914. The writers are especially indebted to Dr. Lyttle for his courtesy in subordinating his own study and turning these patients over to them.

The diet furnished the inmates of these two wards was prescribed by the writers, and instructions were given to the nurses to give more than ordinary care in supervising the feeding. As at the orphanages, a decided increase was made in the animal and leguminous protein foods. A cup of sweet milk, about 7 ounces, is furnished each patient for breakfast and one of buttermilk at both dinner and supper. About half a pound of fresh beef and 2 to 2½ ounces of dried field peas or dried beans enter into the daily ration. Oatmeal has almost entirely replaced grits as the breakfast cereal; sirup has been entirely excluded. Corn products, though greatly reduced, have not been entirely eliminated.

The menu that follows will serve to give a more detailed idea of the character of the diet furnished.

Weekly menu for Ward 23.

MONDAY.

BREAKFAST.—Grits, sweet milk, sugar, broiled steak, hot rolls, biscuits, coffee.

DINNER.—Roast beef, gravy, peas, potatoes, rice, biscuits, buttermilk.

SUPPER.—Stewed apples, light bread, coffee, buttermilk, sugar.

TUESDAY.

BREAKFAST.—Oatmeal, sweet milk, sugar, Hamburg steak, biscuits, hot rolls, coffee.

DINNER.—Beef stew, potatoes, rice, bread, buttermilk.

SUPPER.—Baked beans, light bread, coffee, sugar, buttermilk.

WEDNESDAY.

BREAKFAST.—Oatmeal, sweet milk, sugar, beef hash, hot rolls, biscuits, coffee.

DINNER.—Pea soup, corn bread, gravy, potatoes, rice, bread, buttermilk.

SUPPER.—Stewed prunes, light bread, coffee, sugar, buttermilk.

THURSDAY.

BREAKFAST.—Oatmeal, sweet milk, sugar, fried steak, hot rolls, biscuits, coffee.

DINNER.—Beef stew, peas, potatoes, rice, bread, buttermilk.

SUPPER.—Baked beans, bread, coffee, sugar, buttermilk.

FRIDAY.

BREAKFAST.—Oatmeal, sweet milk, sugar, broiled beefsteak, hot rolls, biscuits, coffee.

DINNER.—Pea soup (purée), roast beef, potatoes, rice, bread, buttermilk.

SUPPER.—Light bread, coffee, sugar, buttermilk, apples, baked beans.

SATURDAY.

BREAKFAST.—Oatmeal, sweet milk, sugar, Hamburg steak, hot rolls, biscuits, coffee.

DINNER.—Beef stew, potatoes, rice, bread, buttermilk.

SUPPER.—Bread, baked beans, buttermilk, coffee, sugar.

SUNDAY.

BREAKFAST.—Oatmeal, sweet milk, sugar, mackerel, bread, coffee.

DINNER.—Loaf beef and gravy, peas, potatoes, rice, bread, buttermilk, pudding.

SUPPER.—Beef hash, bread, sugar, coffee, buttermilk.

NOTE.—Green vegetables in season at irregular intervals. Milk and eggs, as a special diet, are furnished those patients who may require them.

Aside from the change in diet and the increased watchfulness over the individual feeding enjoined on the nurses and attendants, no change in the habitual routine of the corresponding services was made. The patients were permitted and encouraged to visit the yard and take the air as frequently as their physical condition and the weather permitted.

Results.—Of the pellagrins admitted to the writers' wards at the time of their organization, or shortly thereafter—that is, not later than December 31, 1914—72 (36 colored and 36 white), have remained continuously under observation up to October 1, 1915, or remained at least until after the anniversary date of their last year's attack. Of the 36 colored patients, 8 have histories of at least 2 annual attacks; of the 36 white patients, 10 have histories of at least 2 attacks. None of this group of 72 patients has presented recognizable evidence of a recurrence of pellagra.

Significance.

The significance of the results set forth naturally depends upon the rate of recurrence that may properly have been expected to occur in the groups studied under "normal" conditions; that is, without interference of any kind.

The ideal form of the experiment would have been, of course, to retain for purpose of comparison a control group at each of the institutions. This was impracticable at the orphanages. In estimating the significance of the results of the orphanage study, the writers are therefore obliged to depend on general observations and on experience

at other similar institutions. Satisfactory observations on the rate of recurrence either in children or adults are, so far as the writers are aware, not available in the accessible literature. There are to be found for the most part simply general statements that the disease tends as a rule to recur from year to year. Fortunately, Dr. H. W. Rice, of Columbia, S. C., has very kindly given a copy of his records of the cases of pellagra observed by him in children at an orphanage to which he has been attending physician. These records show that of 31 children who had pellagra in 1912, 18, or 58 per cent, had recurrences in 1913; of the 21 who had it in 1913, 16, or 76 per cent, had it in 1914; and of 75 who had the disease in 1914, 56, or 75 per cent, had it again in 1915. The rate of recurrence in children at this institution seems to have varied, therefore, between 58 per cent and 76 per cent. These very valuable data enable one to form a definite conception of the frequency of recurrence that one might expect from year to year in children at such institutions as those at which the writers have worked.

Taking 50 per cent, a rate somewhat lower than the lowest of the above rates, as being fairly and conservatively representative and applying it to the orphanages at Jackson, it is found that 33 recurrences at "M. J." and 52 at "B. J." might reasonably have been expected this year, whereas, as already stated, there actually was none observed at the former and only one at the latter institution.

Although not specifically so planned, conditions at the Georgia State Sanitarium have been such as to give a control group of pellagrins in both the colored and the white female service. This permits the making of a direct comparison of the results observed in the writers' wards with those in other wards of the corresponding services at this institution.

The control group of colored female pellagrins of 1914 consists of 17 who have remained under observation for a period comparable to that of the group on the special diet. Of these, 9, or 53 per cent, have already presented recurrences.

The control group of white female pellagrins of 1914 consists of 15 individuals. Of these, 6, or 40 per cent, have had recurrences this year. Combined, the two control groups have thus far presented an average of 47 per cent of recurrences. Besides the recurrence rates in these control groups, the rates of recurrence in previous years in these services have been determined from a study of the records. It is found that in the colored female service the average rate for the four years 1911, 1912, 1913, and 1914 has been 52.5 per cent, the rate in different years having varied from 40 to 70 per cent. In the white female service the average recurrence rate for the same period has been 37.5 per cent, the rate having varied between 22 and 48 per cent.

It must be quite evident, therefore, that on the basis of any of the foregoing rates a considerable number of recurrences in the groups of insane pellagrins subsisting on the modified diet might reasonably have been expected. On the basis of the average recurrence rate, 47 per cent, observed this year in the control groups, we might have expected some 34 recurrences, or on the basis of the average rate, 37.5 per cent, for four years, for the white female service, a rate lower than the average for the colored female service, we might have expected some 20 to 27 recurrences. As already stated, however, none has actually been observed.

Viewing the foregoing results as a whole, bearing in mind that three different institutions in two widely separated localities are involved, each institution being an endemic focus of the disease, and bearing in mind, also, that the number of individuals considered is fairly large, it seems to the writers that the conclusion is justified that pellagra recurrences may be prevented and, in view of the conditions of the test, that they may be prevented without the intervention of any other factor than diet.

In this connection the question arises whether the conclusion is justified that the development of pellagra, apart from its recurrence, may be prevented by diet. The character of the answer to the question will depend on the view held as to the nature of the pellagra recurrence.

Among the epidemiologic features of pellagra none is more striking than the tendency for the disease not only to develop in the spring or early summer, but to recur year after year at about the same season. Various explanations of this singular phenomenon have been advanced. According to Sambon (1910, p. 49), "this peculiar periodicity of symptoms can be explained only by the agency of a parasitic organism presenting definite alternating periods of latency and activity." A somewhat similar conception appears to be held by the workers of the Thompson-MacFadden Commission (Siler, Garrison, and MacNeal, 1914c), who distinguish between conditions favorable for the development of the disease, in the first place, and those that permit its subsequent recurrence. Why Sambon and many other observers should consider this periodicity of symptoms as explicable only by the agency of a parasitic organism or of a virus or a toxin presenting definite alternating periods of latency and activity is rather hard to understand when it is recalled that in endemic scurvy¹ and particularly in endemic beriberi, diseases of well-known dietary origin, a strikingly similar periodicity is present. The following description of the clinical course of beriberi taken from Scheube (1903, pp. 199 to 200) well illustrates this point: "After developing the disease"

¹ Lind, 1772, pp. 33, 84, 130, 306.

[beriberi], says Scheube, "the condition of the patient may remain the same for months. Then, especially on the appearance of the cold season, improvement sets in and recovery ensues. The predisposition is not extinguished by recovery from the disease; on the other hand, he who has once had beriberi is apt to be attacked again. The relapses are sometimes milder, sometimes more severe than the initial attack, and are repeated every year for shorter or longer periods, sometimes, 10, 20, or even 30 years. Sometimes the disease remains absent for one or several years, and then appears anew. Occasionally two or even three attacks occur during the course of one year."

In the light of this striking analogy, it would seem entirely permissible to invoke as an explanation of the periodic recurrence in pellagra, what undoubtedly is the explanation of the same phenomenon in beriberi, namely, a modification or change in diet brought about by or incidental to the recurring seasons.¹ In accordance with this explanation the recurrence in pellagra is to be considered as in beriberi, etiologically, at least, essentially identical with the initial attack; it would seem permissible to conclude, therefore, that the means found effective in the prevention of recurrences will be found effective in the prevention of the initial attack.

From the foregoing it will be observed that the writers' results are at variance with those of some other recent workers in this field, notably, the Thompson-MacFadden Pellagra Commission. In a summary of their second progress report (Siler, Garrison, and MacNeal, 1914b, p. 1093) this commission concludes that its efforts to discover the essential pellagra-producing food or the essential pellagra-preventing food have not been crowned with success, and that their evidence suggests that neither exists in the population studied by them.

In the opinion of the writers this conclusion is due to the way in which they analyzed what is undoubtedly a very valuable mass of data. They assume that the relation of a particular food to pellagra can be determined by comparing the incidence of the disease in groups of families using this particular food with different degrees of frequency. This assumption, however, fails to take into account the possibility that more than one food having a relation to the disease may have been present in the dietaries of the families studied.

Thus it seemed to them, and at first thought it no doubt would seem to others, that if meat, for instance, had any relation to pellagra, this would be revealed by a comparison of the incidence of the disease in a group of families using this food daily with the incidence in a group using it rarely. As a matter of fact, however, although a comparison of the incidence of pellagra in different families grouped on the basis of the frequency of the use of fresh meat might result,

¹ Vedder, 1913, p. 29.

let us say, in finding a greater relative incidence in families using it daily than in those using it rarely, it would not on that account be permissible to conclude that meat had no preventive value, for it may very well be that the families using meat rarely were protected by some other food or foods, such as milk, eggs, or peas, of which they may have been abundant consumers.

In fact, it is believed by the writers that an analysis of the commission's data from this point of view will show, for instance, that there does exist, or may exist, in a group of cotton-mill villages an inverse proportional relation between degree of pellagra morbidity and the percentage of families using fresh meat and milk "daily" and "habitually." In other words, the disagreement in our results from those of the commission is more apparent than real.

It is beside the present purpose to enter into a discussion of the etiology of pellagra. In order that the position of the writers may be clear, however, it is pointed out that they are not to be understood as meaning that pellagra is necessarily due to a lack or deficiency of fresh animal or leguminous protein food. All that they wish to say at present is that the dietary "fault" upon which in their judgment the development of pellagra essentially depends is capable of being corrected or prevented by including in the diet a suitable proportion of these foods. Nor are they to be understood as meaning that the pellagra-causing "fault" is capable of correction or prevention in this way only. The possibility is not excluded that there may be other foods capable of serving the same purpose. Indeed, there is some reason to justify at least a suspicion that barley, rye, and millet may have this power in some degree.

Moreover, it may be, if Funk's suggestion that pellagra is a vitamin deficiency, brought about by the consumption of overmilled corn, is proven to be correct, that the use of undermilled corn will of itself correct the "fault" in a diet in which this cereal is the staple. For the present at least the point of chief, of fundamental, practical importance is the recognition of the fact that the pellagra-producing dietary "fault," whatever its essential nature or however brought about, is capable of correction or prevention, as the results above presented seem to clearly indicate, by including in the diet suitable proportions of the fresh animal and leguminous foods.

Summary and Conclusion.

1. The diet at two orphanages, "M. J." and "B. J.," for several years endemic foci of pellagra, was modified in accordance with the directions of the writers in September, 1914. Hygienic and sanitary conditions have remained unchanged.

2. The modification in the diet consisted principally of a marked increase in the fresh animal and the leguminous protein foods.

3. Since the change in diet at orphanage "M. J." there has not been observed any recognizable evidence of a recurrence in any of the pellagrins of 1914, 67 of whom remained under observation until they had completed at least the anniversary date of their attacks. Nor have any new cases been observed among the nonpellagrin residents of 1914, 99 of whom have been under observation for not less than a year.

4. Since the change in diet at orphanage "B. J." there has been observed this year but a single individual with recognizable evidence of a recurrence among the pellagrins of 1914, 105 of whom remained under observation until they had completed at least the anniversary date of their attacks. Nor has any new case been observed among the nonpellagrin residents, 69 of whom have been under observation not less than a year.

5. At the Georgia State Sanitarium, an endemic focus of pellagra, a ward of pellagrins in the colored female service and one in the white female service was organized in October and December, 1914, respectively, for a test of diet in the prevention of pellagra.

6. The diet in these wards was modified on the same principle as that at the orphanages. The institution routine and the hygienic and sanitary conditions have remained unchanged.

7. Since the change of diet and up to October 1, 1915, there has not been observed this year any recognizable evidence of a recurrence in any of the pellagrins in these wards, 72 of whom (36 colored and 36 white females) have remained continuously under observation throughout this period or at least until the completion of the anniversary date of their 1914 attacks.

8. During the corresponding period of observation not less than 15 (47 per cent) of 32 control female pellagrins have presented recurrences.

9. The conclusion is drawn that pellagra may be prevented by an appropriate diet without any alteration in the environment, hygienic or sanitary.

APPLICATION.

(By GOLDBERGER.)

The practical application of the foregoing to the problem of the prevention and eradication of pellagra seems so obvious that extended discussion is not called for in the present communication, particularly as a somewhat detailed outline of treatment and prevention has already been published (Goldberger, Willets, and Waring, 1914a and 1914b). At this time it is desired simply to submit for consideration some general recommendations that appear to be pertinent to the problem.

In order that a suitable modification in the diet of the population chiefly affected may be brought about the writer would recommend:

1. An increase in the diet of fresh animal and leguminous foods, particularly during the late winter and spring.
 - a. Ownership of a milk cow and increase in milk production for home consumption.
 - b. Poultry and egg raising for home consumption.
 - c. Stock raising.
 - d. Diversification and the cultivation of food crops (including an adequate pea patch) in order to minimize the disastrous economic effects of a crop failure and to make food cheaper and more readily available.
 - e. Making these foods as accessible as possible in the more or less isolated industrial communities by providing markets, particularly butcher shops, throughout the year.
2. A reduction in the diet of the carbohydrate (starchy) foods.
 - a. Improve economic conditions; increase wages, reduce unemployment.
 - b. Make the other class of foods cheap and readily accessible.

REFERENCES.

- 1914a. Funk (Casimir): *Die Vitamine*. Wiesbaden, 1914.
- 1914b. Idem: *Prophylaxie und Therapie der Pellagra ins Lichte der Vitaminlehre*. Münch. Med. Wchuschr., 1914, pp. 698-699.
- 1914a. Goldberger (Joseph): The Etiology of Pellagra; the significance of certain epidemiological observations with respect thereto. *Public Health Reports*, Washington, June 26, 1914, pp. 1683-1686.
- 1914b. Idem: The Cause and Prevention of Pellagra. Idem. September 11, 1914.
- 1914c. Idem: Beans for Prevention of Pellagra. *Journ. Am. Med. Assn.*, vol. 63, October 10, 1914, p. 1314.
- 1914a. Goldberger (Joseph), Waring (C. H.), and Willets (David G.): The Treatment and Prevention of Pellagra. *Public Health Reports*, Washington, October 23, 1914, pp. 2821-2825.
- 1914b. Idem: Idem. Reprint No. 228 from *Public Health Reports*, Washington, October 23, 1914.
1915. Idem: Idem. Reprint No. 228 from *Public Health Reports*, Washington, October 23, 1914. Revised edition, January 15, 1915.
1772. Lind (James): *A Treatise on the Scurvy*. 3d ed. London, 1772.
1915. Lyttle (Y. A.): The Dietetic Treatment of Pellagra. With report of eleven cases. *Southern Med. Journ.*, vol. 8, August, 1915, pp. 659-662.
1914. Lorenz (W. F.): The Treatment of Pellagra. *Public Health Reports*, Washington, September 11, 1914.
1866. Roussel (Theophile): *Traité de la Pellagra et des Pseudo-Pellagres*. Paris, 1866.
1910. Sambon (Louis W.): Progress Report on the Investigation of Pellagra. (Reprint from the *Journ. Trop. Med. and Hyg.*) London, 1910.
1903. Scheube (B.): *The Diseases of Warm Countries*. London, 1903.
- 1914a. Siler (J. F.), Garrison (P. E.), and McNeal (W. J.): A Statistical Study of the Relation of Pellagra to Use of Certain Foods, etc. *Arch. of Int. Med.*, Chicago, vol. 14, September 15, 1914, pp. 292-373.
- 1914b. Idem: Further Studies of the Thompson-McFadden Pellagra Commission. A summary of the second progress report. *Journ. Am. Med. Assn.*, Chicago, vol. 63, pp. 1090-1093, September 26, 1914.
- 1914c. Idem: The Relation of Methods of Disposal of Sewage to the Spread of Pellagra. *Arch. of Int. Med.*, vol. 14, pp. 453-474, October 15, 1914.
1913. Vedder (Edward B.): *Beriberi*. New York, 1913.

THE PREVALENCE OF PELLAGRA.

ITS POSSIBLE RELATION TO THE RISE IN THE COST OF FOOD.

By EDGAR SYDENSTRICKER, Public Health Statistician, United States Public Health Service.

Among the recent observations that have been made on the relation of diet to the incidence of pellagra is that in the diet of those developing the disease there is a disproportionately small amount of meat or other animal protein food and a disproportionately large amount of carbohydrates and fats. It has also been observed that the disease is chiefly prevalent in the South and is especially prevalent in mill communities, and that it is closely associated with the condition of poverty. Observation apparently tends to indicate a considerable increase in the prevalence of pellagra during the last seven or eight years.

Thus the possible relation of the incidence of pellagra to certain conditions of an economic character is at once suggested. The purpose of this paper is to present, in a brief and tentative manner, some of the more significant data available from investigations of economic conditions. It should be stated that the economic investigations were made and the collection of the data relating to diet that they furnished was done without any thought of their possible bearing on the question of the prevalence of any specific disease. It was only after these data were compiled that their possible significance in this connection was suggested. It should also be stated that the data summarized in the following pages refer to only some of the conditions that may be relevant, and that further examination of existing data and further investigation may contribute more definitely and completely to the determination of the possible relation of the incidence of pellagra to economic conditions. Assuming, however, that this relation does exist, it is believed that these preliminary statements of economic facts will suggest a partial answer to certain questions of interest at present in the discussion of the prevalence of the disease.

With these qualifications in mind, it is purposed to summarize briefly some conclusions afforded by industrial and budgetary investigations regarding:

1. The relation of the wageworker's family income to diet, with certain data relating to wages and income of workingmen's families in the South, and to the adequacy of wages and family income, measured by the cost of living, of wage earners in the South as compared with wage earners in other sections of the United States.

2. Some factors affecting the availability of the food supply in southern industrial localities.

3. Differences in the diet of workingmen's families in Northern and Southern States.

4. Some factors having a possible effect on the diet of southern wageworkers' families in recent years, including the source of the recent labor supply in southern factories and mills and the urban movement of population, changes in the character of the food supply, changes in the status of southern wage earners' families, and the recent rise in the retail prices of foods.

Family income and diet.—It is of course apparent that the economic status of the wage earner's family, as indicated by its gross annual income, bears a very direct relation to the character and the sufficiency of its diet, but in order to state this relation in as definite terms as possible it is pertinent to review the results of budgetary studies affording data (1) as to the proportion of family income available for food expenditures, and (2) as to variations in diet of families of different incomes.

Studies of the budgets of large numbers of families in the United States have shown that the smaller the family income the larger is the proportion of income spent for food and fuel. It also seems to be established that the smaller the income the smaller is the proportion spent for clothing, rent, and sundries. Expenditures for food were found by the Federal Bureau of Labor's study of workingmen's families in 1901, for example, to constitute only 36 per cent of total family expenditures when the family income was \$1,200 or more a year, but to reach 46 per cent and over where the income was less than \$600. The following tabulation shows the per cent of expenditures for various purposes in 11,156 "normal" families classified according to income:¹

Per cent of expenditure for various purposes in 11,156 normal families, by classified income.

Classified income.	Rent.	Fuel.	Lighting.	Food.	Clothing.	Sundries.	Total.
Under \$220.....	16.93	6.69	1.27	50.85	8.68	15.58	100.00
\$200 or under \$300.....	18.02	6.09	1.13	47.33	8.66	18.77	100.00
\$300 or under \$400.....	18.69	5.97	1.14	48.09	10.02	16.09	100.00
\$400 or under \$500.....	18.57	5.54	1.12	46.88	11.39	16.50	100.00
\$500 or under \$600.....	18.43	5.09	1.12	46.16	11.98	17.22	100.00
\$600 or under \$700.....	18.48	4.65	1.12	43.48	12.88	19.39	100.00
\$700 or under \$800.....	18.17	4.14	1.12	41.44	13.50	21.63	100.00
\$800 or under \$900.....	17.07	3.87	1.10	41.37	13.57	23.02	100.00
\$900 or under \$1,000.....	17.58	3.85	1.11	39.90	14.35	23.21	100.00
\$1,000 or under \$1,100.....	17.53	3.77	1.16	38.79	15.06	23.69	100.00
\$1,100 or under \$1,200.....	16.59	3.63	1.08	37.68	14.89	26.13	100.00
\$1,200 or over.....	17.40	3.85	1.18	36.45	15.72	25.40	100.00
Total.....	18.12	4.57	1.12	43.13	12.95	20.11	100.00

In other words, the smaller the family income, the smaller can be the expenditures for housing, clothes, decencies, and comforts, in order to provide food. The fact that progress in civilization is constantly

¹ Eighteenth Annual Report of the United States Commission of Labor: Cost of Living and Retail Prices of Food, 1903. p. 101. By "normal" families was meant families in which the father was the bread-winning member, the mother was nonwage earning, and having three dependent children under 14 years of age.

raising the standard of decency and comfort, and creating new wants and desires, renders the surrender or the lack of means of obtaining them more and more difficult. Studies of budgets of newer immigrant families from southern and southeastern Europe, who are accustomed to lower standards of living than American families, have shown that they spend a considerably larger proportion for food and less for other purposes than American families. The tendency is thus for an increasing pressure to be exerted upon the poorer American families to make every possible sacrifice in their diet. Inadequate family income means not only inadequate funds for providing a nutritious diet, but the bringing into play of other forces that tend to cause sacrifices in diet in order to satisfy in some degree other wants and desires.

The actual variations in the character of the food consumed by workingmen's families of different incomes, as they have been ascertained by important budgetary investigations in the United States by the British Board of Trade and in New York City by Prof. R. C. Chapin, illustrate this tendency and afford significant data on the relation of economic status to diet. These studies showed that the higher the family income the greater was the variety and, up to a certain limit of income, the greater the quantity consumed per capita. Without discussing in detail all of the specific variations, it may be said that the most important variation in the diet was a smaller consumption of milk, eggs, and meats in the lower ranges of income. The British Board of Trade's budgets of a large number of American white and British wage earners' families in the United States in 1909 showed that the average per capita consumption of milk was 30 per cent, of eggs 52 per cent, and of meat 33 per cent greater in families where the range of weekly family income was between \$19.50 and \$25 than in families with less than \$10 a week. The following tabulations compiled from the British report exhibit the average weekly consumption per capita of milk and eggs, the average annual consumption per capita of meat, and the weekly expenditure per capita and percentage of total income spent for meat, according to weekly income:

Average weekly consumption per capita of milk and eggs, by income groups.

Classified weekly income of family.	Average weekly consumption per capita.	
	Milk.	Eggs.
	Quarts.	Number.
Under \$9.73.....	0.79	2.3
\$9.73 to \$14.60.....	.92	3.5
\$14.60 to \$19.47.....	1.11	4.4
\$19.47 to \$24.33.....	1.11	4.8

Average annual consumption per capita, average weekly expenditure per capita, and percentage of income spent for meat, by income groups.

Classified weekly family income.	Annual consumption per capita.	Weekly expenditure per capita.	Percentage of income.
	<i>Pounds.</i>		
Under \$9.73.....	109	\$0.299	12.95
\$9.73 to \$14.60.....	145	.411	13.49
\$14.60 to \$19.47.....	160	.456	12.22
\$19.47 to \$24.33.....	165	.487	11.36
\$24.33 to \$29.20.....	174	.522	10.50
\$29.20 to \$34.07.....	176	.527	9.82
\$34.07 to \$38.93.....	195	.608	10.23
\$38.93 and over.....	212	.654	8.28

Other differences were chiefly in variety, the tendency being toward a greater increase of baker's bread, cakes, breakfast cereals, coffee, cocoa, chocolate, and the like, as income increased. The conclusion is pointedly suggested, therefore, that the quantity of meat purchasable by poorer families was insufficient to satisfy the craving of the individual. If the natural appetite of the individual can be regarded as an index of his physical needs, then the conclusion is suggested that the meat prices prevailing at that time (1909) prevented this class of families from having a sufficient amount of this article of diet.

Wages and family income in the South.—It is a generally accepted fact that wages in the Southern States are generally lower than in the Northern or Middle Western States. In fact, every investigation involving a comparison has shown this to be true. The Federal Bureau of Labor's extensive cost of living study in 1901 secured data as to annual income of 25,440 families of representative workingmen in the principal industrial area of the United States, which showed that the average southern white workingman's family income was between \$650 and \$690, or approximately 10 per cent lower than in the Northern States and 20 per cent lower than in the Western States. These data were for all occupations and industries.

In some occupations and industries the difference is considerably greater. The same authority's later investigations found that iron and steel workers in the South were earning considerably lower wages than in other districts.¹ Similar conclusions for this industry were afforded by the industrial investigations of the Federal Immigration Commission.² Of greater interest here are the results of the Federal woman and child labor investigations of cotton-mill workers in New England and Southern States. While slightly over half of the workers in New England mills were found to be earning under \$7

¹ Report on Conditions of Employment in the Iron and Steel Industry in the United States, Vol. III, pp. 223-228, 1913.

² Reports of the Immigration Commission, vol. 8, p. 70, 1911.

a week, nearly nine-tenths of the southern mill workers were in that group.¹

Per cent of cotton-mill workers earning less than specified weekly amounts in New England and Southern States.

	New Eng- land.	Southern States.		New Eng- land.	Southern States.
Under \$3.....	6.5	23.5	Under \$9.....	78.5	96.6
Under \$5.....	25.7	57.8	Under \$10.....	87.1	98.6
Under \$7.....	55.5	86.1	Under \$12.....	96.5	99.8

The average annual income of the southern cotton-mill family was found to be \$822, as contrasted with \$1,002 for New England cotton-mill families, the southern family income being 20 per cent lower.

The adequacy of wages and income as measured by prices in the South.—The real test of the adequacy of wages or income, however, is in its purchasing power as measured by prices of commodities ordinarily used by wageworkers' families. Using this test, the statement is warranted by all available data that the cost of living of wage earners in the South is not lower in the same proportion as wages or family income. In fact, there is evidence of the contrary. While workingmen's rents are approximately the same or slightly lower in the South than in the North, food prices in industrial localities are, as a general rule, higher in the South. The British Board of Trade's inquiry into the cost of living in American towns in 1909, for example, developed the fact that the food-price level in southern towns, weighted according to actual consumption in wage earners' families, was above the average of the rest of the country, the southern towns being from 2 to 9 per cent higher than New York City.²

Prices of the cheaper cuts of beef and of milk were in nearly every instance higher in southern towns than in the North. The conclusion indicated by the available evidence, and in accordance with the principles of family income and expenditure already referred to, are that the wage earner's family in the South is at a greater economic disadvantage than in the Northern States, and that there is a greater pressure exerted in favor of sacrifices in diet in order to maintain an otherwise comfortable standard of living.

Food supply in southern industrial communities.—The availability of the supply of various kinds of foods in different sections of the

¹ Report on Condition of Woman and Child Wage Earners in the United States, Vol. I, p. 305, 1910. Similar differences for workers in the cotton-goods industry in the United States were found by the Tariff Board in its examination of the pay rolls of northern and southern mills. See Cotton Manufactures, Message from the President of the United States transmitting the Report of the Tariff Board on Schedule I of the Tariff Law, Vol. II, pp. 653-658 (House Doc. 643, 62d Cong., 2d sess.), 1912.

² Cost of living in American towns, report of inquiry by Board of Trade of London (Board of Trade of Great Britain) into working-class rents, housing, and retail prices, with rates of wages in certain occupations in principal industrial towns of United States as presented to British Parliament. 1911. (S. Doc. 22, 62d Cong., 1st sess. Reprint of original edition, London, 1911.)

country is another important factor in determining the character of the diet, especially the diet of those whose income is close to the margin of subsistence. To ascertain the full influence of this factor, more extensive and detailed studies of statistics of production, efficiency of food distribution, the prevalence of markets, stores, and other selling agencies, etc., than has been possible to make for these preliminary observations will be necessary. It may be tentatively stated, however, that food production, particularly of beef and several other important animal protein foods, has until recent years lagged behind and is still very far below that of the rest of the country, even when calculated on a per capita basis. The same situation has been observed in the distribution of foods. Lean meat, fresh or salt, for example, is not so generally sold in the southern industrial town and village as in similar localities in the North and Middle West, and where it is sold its prices, as already pointed out, are generally higher. For example, the Federal investigation of woman and child wage earners in 1907 and 1908 found that in over a third of the cotton-mill communities in the South there were stores operated directly or indirectly by the cotton-mill companies which were patronized almost exclusively by the workers. It was found that few company stores sold fresh meat even irregularly or infrequently, in spite of the fact that company stores were generally better stocked with all kinds of articles of ordinary consumption than the private stores in the same localities. Vegetable gardens in the southern mill town and village were found to be over three times as prevalent as in New England mill communities. Except in distinctly rural communities, hogs, cows, and poultry were rarely kept by the cotton-mill families, the practice being discouraged in thickly settled localities.

Budgetary data showing differences in diet according to geographical divisions or sections.—How far each or all of these factors have contributed to the differences in diet that have been found to exist between families of wage earners in the South and in the North, and how far the differences are due to less tangible and measurable influences affecting habits of consumption, can not be stated at this stage of our study. But the actual differences in diet are unquestioned facts and constitute a condition which is of special interest here. These differences, as determined by budgetary investigations of wage earners' families, may now be briefly stated.

The principal sources of data are the Federal Bureau of Labor's cost of living investigation in 1901, including 2,567 white workingmen's families, and British Board of Trade's inquiry into the cost of living in American towns in 1909, including 1,036 white workingmen's families. The data obtained by these two investigations are for both quantities and cost of foods and are generally comparable so far as the race and economic status of the families and conditions.

governing their diet are concerned. They are corroborated by other local budgetary studies.

These budgetary studies indicate marked differences in the diet of wage earners and their families in the Northern and Southern States. The consumption of lean meats and other protein foods is considerably greater in the North than in the South, and of hydrocarbons and carbohydrates is considerably greater in the South than in the North. For example, beef and milk are much more important articles of diet in the North, while salt hog products and lard are important in the South. The Bureau of Labor's data for 1901 showed that southern wage earner's families consumed over 25 per cent less protein foods, over 45 per cent more hydrocarbons, and over 10 per cent more carbohydrates. While data for the carbohydrate group included only bread, flour and meal, potatoes, sugar, and rice, and thus indicate rather the trend than the total actual consumption of articles of this food group, it is possible that statistics of total consumption would have indicated an even higher percentage in favor of the southern families.

The detailed statistics of quantities consumed in a year by families grouped according to geographical divisions, reduced to pounds, is set forth in the following table compiled from the Bureau of Labor's 1901 data:

Average quantity per workingman's family of articles of food consumed in 1901, by geographical divisions, stated in pounds.¹

MEATS AND OTHER PROTEIN FOODS.

Article.	North Atlantic (1,415 families).	North Central (721 families).	South Atlantic (219 families).	South Central (123 families).	Western (90 families).	United States (2,567 families).
Fresh beef.....	352.2	363.5	306.8	317.4	348.4	349.7
Salt beef.....	75.3	21.3	9.4	3.5	3.8	48.6
Fresh hog.....	103.4	152.6	85.3	128.1	28.4	114.2
Poultry.....	67.2	71.3	73.6	53.0	53.5	67.6
Fish.....	98.9	56.5	66.1	39.5	57.5	79.9
Eggs.....	85.8	88.3	90.6	85.0	39.8	85.2
Milk.....	158.5	139.5	76.7	88.3	139.7	141.8
Cheese.....	31.8	34.8	30.4	37.8	7.6	32.0
Other meats.....	98.1	68.8	28.1	11.2	37.8	77.7
Total.....	1,071.2	996.6	767.0	763.8	716.5	996.7

FATS OR HYDROCARBON FOODS.

Butter.....	118.9	124.0	102.1	88.9	108.9	117.1
Lard.....	73.8	89.1	119.5	143.3	48.5	84.4
Salt hog.....	95.2	87.3	222.2	248.7	76.6	110.5
Total.....	287.9	300.4	443.8	480.9	234.0	312.0

VEGETABLES OR STARCH FOODS.

Bread.....	310.2	165.6	197.0	199.8	255.2	252.7
Flour and meat.....	780.0	897.7	1,064.7	1,224.3	565.4	746.0
Potatoes.....	162.5	228.7	138.7	166.2	128.7	183.7
Sugar.....	523.1	468.2	415.7	453.8	474.3	496.7
Rice.....	5.5	5.2	12.3	11.8	2.5	6.2
Total.....	1,781.3	1,765.4	1,828.4	2,055.9	1,426.1	1,685.3

¹ Based on statistics in the Eighteenth Annual Report of the Commissioner of Labor, p. 645 (listed in Bull. 140, Bureau of Labor Statistics, p. 26, Feb. 10, 1914).

For the "meats and other proteins" group of foods the geographical differences in consumption are significant. In the Northern States the average family was found to consume between 1,000 and 1,100 pounds of proteins, while in the Southern States the protein consumption averaged between 700 and 800 pounds. The southern family consumed nearly a pound a week less of fresh beef, nearly half as much milk, very much less of "other meats," and hardly any salt beef, as compared with northern families. For the "fats and hydrocarbon" group of foods even more significant differences are shown. While families in Northern States were found to consume larger quantities of butter, families in Southern States consumed over 60 per cent more lard and nearly three times as much salt hog products. Some of the variations in specific foods are interesting, such as the large consumption of flour and meal in the Southern States and of bakers' bread in the North Atlantic States.

The chief differences shown by the Bureau of Labor's 1901 budgets are corroborated by the British Board of Trade's inquiry of 1909.¹ The latter's data is for weekly instead of yearly consumption, and for northern and southern families alone. These two divisions included families in both the Atlantic and the Central States, however, and are comparable to the Bureau of Labor's Northern Atlantic and North-Central and Southern Atlantic and South-Central. In order to compare families with incomes of as nearly the same average as possible, only those having average weekly incomes of from \$12 to \$17.50 are selected from the British study.

The following tables set forth in detail the quantities consumed per week by the families described above:

Average quantities of food consumed per week in 1909 by American-British wage earners' families in northern and southern cities.²

MEATS AND OTHER PROTEIN FOODS.³

Articles of food.	Northern.	Southern.
Beef, fresh and corned.....pounds..	6.04	5.60
Pork, fresh and salt.....do....	2.15	2.63
Mutton or lamb.....do....	.91	.26
Veal.....do....	.80	.25
Sausage.....do....	.66	.84
Fish.....do....	1.40	.91
Poultry.....do....	.54	.31
Cheese.....do....	.45	.54
Eggs.....number..	19.90	16.85
Milk, fresh.....quarts..	4.77	2.84
Milk, condensed.....pounds..	.76	1.35
Dried peas and beans.....do....	1.11	2.01

¹ The data available for geographical comparison in the British inquiry is confined to American-British families; but it is in the main comparable to the Bureau of Labor's data, since the great bulk of nationalities included in both are native white, British and Canadian born.

² Compiled from British Board of Trade Report on the Cost of Living in American Towns. (S. Doc. 22, 62d Cong., 1st sess., pp. 405, 407.)

³ Salt pork is not given separately from fresh pork and is included under the head of "meats and other protein foods," although it probably should be classed under "fats," especially for southern families.

Average quantities of food consumed per week in 1909 by American-British wage earners' families in northern and southern cities—Continued.

FATS OR HYDROCARBON FOODS.

Articles of food.	Northern.	Southern.
Bacon and ham.....pounds..	1.46	2.93
Lard, suet.....do.....	1.29	3.21
Butter.....do.....	1.74	1.76
Oleomargarine.....do.....	.05	.02
Olive oil.....pints..	.03	.04

VEGETABLE OR STARCH FOODS.¹

Wheat bread.....pounds..	7.64	9.28
Rye bread.....do.....	.87	.14
Other bread.....do.....	.13	.19
Wheat flour.....do.....	8.99	13.32
Rye and other flour.....do.....	.31	.57
Rolls, cakes, biscuits.....do.....	3.99	2.23
Macaroni, spaghetti.....do.....	.53	.92
Rice, barley, sage.....do.....	.91	2.31
Oatmeal and breakfast foods.....do.....	1.23	1.47
Potatoes.....do.....	18.59	10.37
Sugar.....do.....	4.45	4.53
Molasses and sirups.....pints..	.40	1.34
Corn and corn meal.....pounds..	.73	5.31
Sweet potatoes.....do.....	1.00	7.35

¹ Green vegetables were not stated in quantities, but a comparative statement is afforded in the figures of expenditure, as follows:

	Northern.	Southern.
Sweet corn.....	\$0.04	\$0.03
Green vegetables.....	.36	.30
Canned vegetables.....	.13	.19
	.53	.52

The budgets in both instances were taken in February, 1909. While green vegetables may have been cheaper in the southern cities than in the northern, the amount expended is too small to influence the character of diet to any considerable extent. *Ibid.*, pp. 404,406.

The British inquiry was more detailed in its examination of family diet, the quantity purchased, and the cost of practically every article of food being taken into consideration. It furnishes more specific data as to the differences in diet of northern and southern workingmen's families than the Bureau of Labor investigation. The following may be set forth as some of the most significant differences:

1. The quantity of wheat bread and wheat flour consumed by southern families is considerably larger than by northern families. This is only very slightly balanced by the greater quantity of rolls and cakes consumed by the northern family. Taking flour and flour products of all kinds, the average northern family of this group consumed 22.46 pounds weekly as against 26.85 for the southern family. Southern families consume larger quantities of corn and corn meal, rice, and molasses and sirups than the northern families. This is true of families of all incomes.

2. The southern consumption of fats is very much larger than the northern. This is seen chiefly in the fact that the southern family of this group consumes twice as much bacon and ham and more than twice as much lard, suet, and dripping. Butter, oleomargarine, and olive oil are practically the same. Unfortunately, salt pork is not

given separately in the budget; it is safe to say that this would show a considerable increase in the amount of fats consumed by southern families.

3. Contrasting sharply with the larger quantities of starches and fats consumed by the southern families is their low consumption of proteins as compared with northern families. With the exception of cheese, sausage, dried peas and beans, and condensed milk—all of which are comparatively unimportant so far as quantity actually consumed is concerned, and of which sausage may almost be said to belong to the fatty foods—the average northern family of this group consumes more proteins of all varieties. This is also true of all families considered in the British-American budgets. In instances where separate data is available for southern native whites, as distinguished from the other families composing the southern American-British group, it is seen that the tendency to consume small quantities of meats on the part of native-born families is further accentuated.

In this connection data obtained from typical budgets of southern cotton-mill workers' families are of interest, and the Federal report on woman and child wage earners, summarizing the dietary data for southern families, says:¹

The menus which appear with the family studies show better than can any description the character of the food eaten by the cotton-mill operative. It will be seen that corn bread, biscuit, pork, and coffee form a large part of the diet of all families. No tea is used, but one family substituted Postum for coffee. When pork is mentioned without qualification it means "fat pork," which is fat pork dry salted. This kind of meat contains very little lean. Other kinds of pork are always specified, as ham, pork chops, or bacon. * * * No yeast bread is used. Corn bread or biscuit is used by all families. * * * One family had chicken twice and another had salt herring twice. In all other cities pork in some form was the only meat used. Unless the family owned a cow milk does not appear in the diet, not even for coffee.

Recent economic factors affecting the diet of wage earners' families in the South.—With these marked differences in the diet of wage-earning families in the South as compared with similar families in other industrial areas of the United States, so unmistakably indicated by all of the available data, the question suggests itself, Has the situation shown any tendency toward a change in recent years? Or, if there has been a change, Has the situation been mitigated or intensified?

While it has been impossible in a preliminary survey of this phase of the subject to give detailed consideration to all of the possible factors that might affect the situation, at least four important factors should be mentioned. Those are: (1) The changes in diet of families in the South who, in response to the increased demand for white labor, have come from rural districts to live under urban conditions; (2)

¹ Report on Condition of Woman and Child Wage Earners in the United States, Vol. XVI. Family Budgets of Typical Cotton-Mill Workers, p. 23. The families studied were in Atlanta, Ga.; Greensboro, N. C.; and at a mill near Burlington, N. C.

the trend of wages in the South as indicating possible changes in the economic status of wage earners' families; (3) the trend in the production of food; and (4) the advances in retail food prices.

The change from farm to mill town.—The increase in urban population as compared with the increase in total population, according to the Federal census, was greater in the Southern States than in other sections of the United States during the last census decade. There has been a tremendous and an unprecedented movement from rural districts in the South. To a large degree this movement is composed of farmers and their families, or the children of farmers, who are relinquishing country life for life as workers in the rapidly developing factory and mill towns and villages. The average number of wage earners in the South increased 50.8 per cent in the 10 years from 1899 to 1909, the actual average number of wage earners in the South being over 380,000 greater in 1909 than in 1899.

The cotton-goods industry affords perhaps the best illustration of this movement. While the number of active producing spindles in the New England cotton mills increased only 19.7 per cent in the last census decade, it increased 139.9 per cent in the South Atlantic States. The increase in number of wage earners in cotton mills for the principal southern cotton-manufacturing States was as follows: North Carolina, 56 per cent; South Carolina, 50.5 per cent; Georgia, 52.1 per cent. Going back another decade, the number of spindles in southern cotton mills increased from 1,600,000 in 1889 to nearly 10,400,000 in 1909. "This enormous increase," said the Federal report on the condition of woman and child wage earners in 1910, "created a tremendous demand for white labor, which has been supplied almost entirely by the farms of the South. The negro population has contributed little to this industrial development, as negroes are employed only as general labor about cotton mills and occasionally for the heavy work in the picker and opening rooms."¹ It was found in the same investigation that the percentage of operatives coming from mountain sections was very much smaller than those from farms surrounding the cotton-mill villages, and that the so-called "mountaineer" element in the mills was slight.²

Hence the transition was from the farm to the industrial village and town. It was found that in the Southern States over 75 per cent of a large number of representative operatives had spent their childhood on farms, less than 21 per cent in villages, and only 4 per cent in cities. In New England mills it was found that only 27.3 per cent of the operatives had spent their childhood on farms, but that over 44 per cent had been reared in cities and about 20 per cent in villages, the last named being principally the children of

¹ *Supra cit.*, Vol. I, p. 119.

² *Ibid.*, p. 120.

cotton-mill operatives who had moved from farms to cotton-mill communities.

The exact dietary effects of this change from farm to industrial communities can not be stated, of course, until intensive comparisons can be made of the diet of the farm population in the sections from which the exodus has taken place with the diet of industrial wage workers. General observation suggests that the rural population has a better balanced diet than that indicated by the results of budgetary investigations of southern workingmen's families, particularly in the purely industrial localities.

The present trend of wages and of income of wage earners' families in the South.—While there has been a gradual increase in the rates of wages in the principal industries in the South during the last 10 or 12 years, the wage level continues to be lower, certainly in similar industries, in the South than in the North. For example, the wage statistics of the Federal Bureau of Labor Statistics show that there has been an increase in the rates of wages of South Carolina cotton-mill workers of less than 5 per cent during the five-year period 1907–1912, while wages of lumber-mill workers in the Southern States remained practically stationary. In the years of acute industrial depression, 1908 and 1909, there was an actual decrease in the rates of wages in cotton mills, and the level of 1907 was not again reached until 1911. A more marked drop in wage rates occurred in the lumber mills, and decreases were also shown in wood and furniture manufactures.

The collection and compilation of wage statistics for the South covering the period from 1900 to the present time have not proceeded far enough to enable a presentation of them here in proper form, but it may be stated that these statistics indicate what general and familiar observation has shown—that the recent industrial depression caused wage workers and their families in the principal southern industries to be placed at a very serious economic disadvantage. Not only were the rates of wages lower in some instances, but the opportunity for earning wages was greatly lessened by the closing down and curtailment of mills and factories. This meant that the annual incomes of a very large proportion of the workingmen's families were considerably reduced, as well as rendered extremely uncertain and irregular, because of unemployment and irregular employment. This depression began in the latter part of 1907 and has continued with varying intensity until the present. The significance of this condition, so far as the diet of wage earners and their families is concerned, is, of course, apparent in the light of the principles underlying the relation of family income to diet. It will be seen to possess additional significance when certain facts relating to the availability of the food supply and the retail prices of food are considered.

The trend in the availability of the food supply in the South.—While methods of food distribution in the South have improved with the development of urban communities in that section, and thus an apparent advantage has resulted in the better facilities for supplying all kinds of foods in the average locality, a serious question may be raised as to whether this advantage is not offset by certain disadvantageous factors affecting the food supply. Without attempting to make exact statements of their effects on the diet of wage earners' families in the South, it may be pertinent to suggest some of these disadvantageous factors.

Although the movement for crop diversification and beef and milk production in the South has been begun, the trend of actual food production has not yet been such as to improve materially the balance in the southern wage earner's diet. The familiar statistics of the decline in beef production in the United States show that the per capita production in 1900 was 211 pounds and only about 160 in 1914. The per capita meat consumption fell, in the three years from 1909 to 1912, according to the Federal Bureau of Animal Industry, from 162 to 152 pounds. The beef supply in southern urban and industrial centers continues to be chiefly, if not altogether, furnished by other sections of the country. It has not yet been aided very materially by increased beef production in the South itself. Without stating the figures in detail, the census statistics show that population growth in the South during the last decade has been at a more rapid rate than the increase in the number of cattle, poultry, and swine, and has only about kept pace with the increase in the number of dairy cattle and the production of eggs.

It is probable that these disadvantageous factors have been augmented by other conditions of a local nature, such as the enactment of "no-fence" laws and the tendency, which was noted in southern mill towns by investigators of the Federal Bureau of Labor in 1907 and 1908, toward prohibiting the keeping of dairy cows as a part of stricter sanitary regulations. It is obvious that both of these conditions would affect the poorer families the most.

The increase in retail prices of foods.—Regardless, however, of the possible results of conditions affecting the availability of a well-balanced food supply, the extent to which the available food supply is actually utilized and a properly balanced diet is actually maintained is determined not so much by the actual presence of such a supply in local markets as by the financial ability of the wage earner and his family to purchase it. This is a matter not only of the size of the family income, but also of retail prices of food. We must therefore regard the increase in food prices as probably the most important of all of the factors affecting the diet of the wageworking population, especially of those whose economic status is close to the margin of subsistence.

If we remember that wages advanced in the period 1900-1913 only about 25 per cent, and probably at a slower rate in the South, particularly of cotton and lumber-mill workers, and that there was a serious industrial depression from 1907 until almost the present time, which was possibly more marked in the South than in other sections, the significance of a rise in the retail prices of foods of over 60 per cent must be at once apparent. It is of peculiar interest to note that the increase in food prices in the South Atlantic States during the six years 1908-1913 was about 50 per cent greater than in the seven years, 1901-1907, and even more pronounced in the South Central States.¹ Not only must a larger proportion of family income have been necessary for food in order to maintain an adequate diet, but unless family income kept pace with food prices there must have been a greater number of families whose incomes were insufficient to provide an adequate diet. This pressure of subsistence upon income has been greatest since about 1908.

There are, however, more specific reasons for believing that the increase in retail food prices has been particularly severe on workingmen's families in the South. Since the Federal Bureau of Labor's cost of living investigation in 1901 is used as the basis for weighting price index figures, that year instead of 1900 will be used here for comparison with 1913 (the latest year for which continuous index figures are at present available), although the increase in prices will be thus arbitrarily curtailed by nearly 10 per cent.

1. The retail prices of foods show approximately a 5 per cent greater increase in the South Atlantic States than in the North Atlantic States and approximately a 10 per cent greater increase in the South Central States than in the North Central States. The general percentage of increase for the Southern States was greater than for the Northern or Western States. The following tabulation exhibits these statistics by geographical divisions:²

Relative retail prices of foods, 1910 and 1913, weighted according to consumption in workingmen's families.

[100=average for 1890-1899.]

Geographical division.	1901	1913	Per cent of increase.
North Atlantic States.....	108.0	156.2	44.6
North Central States.....	109.5	167.1	53.2
South Atlantic States.....	109.7	161.1	46.9
South Central States.....	109.7	175.2	59.7
Western States.....	104.9	158.1	50.7

The southern wageworker's family has been placed at a somewhat greater economic disadvantage by the advance in retail prices of foods than the wageworker's family in the North or in the West.

¹ U. S. Bureau of Labor Statistics: Retail Prices 1890-1913, Bull. 140, p. 11.

² Compiled from tables, *ibid.*, pp. 11, 15.

To illustrate the effect of such an increase of food prices upon family income, the approximate cost of a year's food supply, based on actual consumption as determined by the Bureau of Labor's cost of living investigation, for 1900 and 1913, may be compared. In order to maintain the same diet in 1913 as in 1900, the average workman's family in the South Atlantic States, for example, would have had to spend \$155 more a year, and in the South Central States \$192 more a year. Since wages have not increased in proportion, it is impossible to assume that this diet has been maintained. Comparing 1913 with 1907, thus including a period in which wages of cotton-mill workers in South Carolina (for instance) advanced less than 5 per cent and in which an industrial depression occurred, the wageworker's family would have had to spend \$75 more a year in 1913 than in 1907, or an increase of nearly 20 per cent. Sacrifices in variety, quality, and quantity must have been necessary as the result of the increased cost of food, since it has been found in the course of industrial investigations in 1901 that fully half of the workingmen's families were already living on a very close margin of subsistence.

2. What have been these sacrifices in diet that increased food prices have necessitated? A partial answer is to be found in the statistics of increases in prices of specific articles of diet, since the natural tendency is toward the substitution of the cheaper for the more expensive foods.

The Bureau of Labor Statistics' index figures for 15 principal articles consumed by workingmen's families, on the basis of the 1901 investigation, are given below for 1901 and 1913 in order to exhibit the relative increase or decrease in the 12 years, as follows:

Relative prices of the principal articles of food consumed by workingmen's families in 1901 and 1913.¹

[Average price for 1890-1899=100.]

Article of food.	1901	1913	Relative increase.
Sirloin steak.....	109.4	171.3	61.9
Round steak.....	114.0	190.5	85.5
Rib roast.....	112.7	172.0	59.3
Pork chops.....	119.0	213.8	94.8
Bacon, smoked.....	121.3	225.9	104.5
Ham, smoked.....	111.1	181.2	70.1
Lard, pure.....	119.6	166.6	47.0
Hens.....	105.0	171.8	66.8
Flour, wheat.....	94.9	128.4	33.5
Corn meal.....	107.6	160.4	52.8
Eggs, fresh.....	107.7	174.8	67.1
Butter, creamery.....	103.0	153.2	50.2
Potatoes, Irish.....	114.0	151.2	37.2
Sugar, granulated.....	102.1	95.3	² 6.8
Milk, fresh.....	101.4	140.2	38.8

¹ The foregoing list is illustrative more of the kinds of food constituting the diet of the average workingman's family in 1901 than in 1913, as will easily be seen. Since January, 1912, the bureau has added cold storage eggs and chuck steak to the list. But the foods included in the above list fairly indicate the rise in the prices of the principal varieties of food, although they do not, of course, compose as great a proportion of the workingman's diet now as they did in 1901.

² Decrease.

These statistics indicate that there were wide variations in the rate of price increase of the different articles of food. It is important to note that the greatest increases have been in the prices of meats, including poultry and eggs, and that the smallest increases have been in the prices of vegetables and cereals. Unfortunately, salt pork, which is so important an article of diet in southern workingmen's families, is not included in the Bureau of Labor Statistics' list, but unofficial statistics indicate that the price of this article of diet has increased only 25 or 30 per cent as compared with percentages for lean fresh meats of from 60 to 100 per cent. But even excluding this item from consideration, and grouping the bureau's list in the three classes—proteins, starches, and fats (including smoked ham and bacon as fats)—we have an average percentage of price increase from 1901 to 1913 as follows:

Proteins.....	61
Hydrocarbons.....	38
Carbohydrates.....	37

The meats and other protein foods have thus increased about 40 per cent more than the other two groups, and very probably at more than that rate as compared with the hydrocarbon group had salt pork been included.

It seems to be clearly shown from available statistics that the trend of food prices has been to intensify the maladjustments in the diet of southern wageworkers' families. Comparisons of actual budgets of wageworkers' families in 1901 with budgets in later years, so far as comparisons are possible, tend to corroborate this conclusion.

Conclusions.—A preliminary review of some of the more important data relating to the diet of workingmen's families afforded in the results of industrial and budgetary investigations appears to point to the following conclusions:

1. The lower the economic status of the white American family, the greater is the pressure for sacrifices in diet, particularly in animal protein foods, since animal protein foods are the most expensive.
2. The economic status of wage earners' families in the Southern States, particularly of cotton-mill families, is lower than that of wage-earners' families in other sections of the country.
3. Certain factors have tended to restrict the supply of protein foods in southern industrial localities that do not restrict, at least to the same extent, the supply of carbohydrates and hydrocarbons.
4. Budgetary studies of a large number of native white wage earners' families, generally comparable as to annual family income and size, indicate that the proportion of proteins in the diet of southern families is considerably less and of carbohydrates and of hydrocarbons considerably greater than in the diet of northern families.

5. Certain factors have tended to intensify this condition in recent years, particularly since the industrial depression began in the latter part of 1907. While the supply of a better-balanced diet in southern industrial localities has apparently not been improved materially, the economic status of wage earners' families, especially in the cotton goods and lumber industries, has been lowered, and retail prices of foods have greatly increased, this increase being more pronounced, particularly since 1907, than in other sections of the country. The increase in retail food prices has been at least 40 per cent higher in proteins than in carbohydrates or in hydrocarbons.

The available data thus point to a lessened financial ability of southern wage earners' families to provide a properly balanced diet, as well as a decrease in the availability (measured by retail prices) of an animal protein food supply for the wageworking population, particularly since about 1907 or 1908.

PLAGUE-PREVENTION WORK.

CALIFORNIA.

The following reports of plague-prevention work in California were received from Surg. Pierce, of the United States Public Health Service, in charge of the work:

WEEK ENDED SEPTEMBER 18, 1915.

SAN FRANCISCO, CAL.		SAN FRANCISCO, CAL.—Continued.	
RAT PROOFING.		RAT PROOFING—continued.	
New buildings:		Old buildings—Continued.	
Inspections of work under construction	222	Total area concrete laid...square feet..	59,980
Basements concreted (square feet, 75,664)	76	Floors rat proofed with wire cloth	
Floors concreted (square feet, 10,075)...	6	(square feet, 4,020).....	3
Yards, passageways, etc. (square feet, 24,941).....	152	Buildings razed.....	12
Total area of concrete laid...square feet..	110,680	New garbage cans stamped approved.....	444
Class A, B, and C (fireproof) buildings:		Nuisances abated.....	270
Inspections made.....	175	OPERATIONS ON THE WATER FRONT.	
Roof and basement ventilators, etc., screened.....	4,250	Vessels inspected for rat guards.....	22
Wire screening used.....square feet..	21,320	Reinspections made on vessels.....	32
Openings around pipes, etc., closed with cement.....	3,278	New rat guards procured.....	14
Sidewalk lens lights replaced.....	1,200	Defective rat guards repaired.....	5
Old buildings:		Rats trapped on wharves and water front..	28
Inspections made.....	292	Rats trapped on vessels.....	24
Wooden floors removed.....	31	Traps set on wharves and water front.....	181
Yards and passageways, planking removed.....	6	Traps set on vessels.....	71
Cubic feet new foundation walls installed	8,980	Vessels trapped on.....	12
Concrete floors installed (square feet, 20,666).....	19	Poisons placed on water front.....pieces..	3,600
Basements concreted (square feet, 12,950).....	22	Poisons placed within Panama Pacific International Exposition grounds..pieces..	7,200
Yards and passageways, etc., concreted (square feet, 26,364).....	74	Bait used on water front and vessels—bacon, pounds.....	6
		Amount of bread used in poisoning water front.....loaves..	12
		Poison used on water front.....pounds..	6

RATS COLLECTED AND EXAMINED FOR PLAGUE.

	In city.	On ships.	Total.
Collected.....	291	50	341
Examined.....	276	50	326
Found infected.....	0	0	0

RATS IDENTIFIED.

<i>Mus norvegicus</i>	162	<i>Mus musculus</i>	56
<i>Mus alexandrinus</i>	45	<i>Mus rattus</i>	77

SQUIRRELS COLLECTED AND EXAMINED FOR PLAGUE.

Counties.	Shot.	Examined.	Found infected.
Contra Costa.....	459	459	4
Monterey.....	161	161	0
San Benito.....	153	153	0
Stanislaus.....	15	15	0
Alameda.....	6	6	0
Total.....	794	794	4

RANCHES INSPECTED AND HUNTED OVER.

Contra Costa County.....	41
San Benito County.....	21
Do.....	20
Alameda County.....	4
Stanislaus County.....	2
Total.....	88

PLAGUE-INFECTED SQUIRRELS.

Contra Costa County:

Shot Aug. 23, 1915. Pereira Ranch, 7 miles southwest of Lafayette, sec. 15, T. 1 S., R. 3 W.....	1
Shot Aug. 30, 1915. J. Christen Ranch, one-half mile west of Pacheco.....	1
Shot Aug. 31, 1915. Silva Ranch, 5½ miles southwest of Lafayette.....	1
Shot Sept. 1, 1915. C. Belshaw Ranch, 6 miles south of Antioch.....	1

WEEK ENDED SEPT. 25, 1915.

SAN FRANCISCO, CAL.

RAT PROOFING.

New buildings:	
Inspections of work under construction.....	165
Basements concreted (square feet, 71,595).....	86
Floors concreted (square feet, 10,095)....	12
Yards, passageways, etc. (square feet, 26,947).....	99
Total area of concrete laid (square feet) .	108,537
Class A, B, and C (fireproof) buildings:	
Inspections made.....	160
Roof and basement ventilators, etc., screened.....	3,300
Wire screening used (square feet).....	21,880
Openings around pipes, etc., closed with cement.....	3,710
Sidewalk lens lights replaced.....	900
Old buildings:	
Inspections made.....	373
Wooden floors removed.....	26
Yards and passageways, planking removed.....	15

SAN FRANCISCO, CAL.—Continued.

RAT PROOFING—continued.

Old buildings—Continued.

Cubic feet new foundation walls installed.....	5,315
Concrete floors installed (square feet, 26,937).....	36
Basements concreted (square feet, 20,545).....	37
Yards and passageways, etc., concreted (square feet, 12,308).....	64
Total area concrete laid (square feet) ...	59,799
Floors rat proofed with wire cloth (square feet, 14,425).....	3
Buildings razed.....	9
New garbage cans stamped approved.....	471
Nuisances abated.....	252

OPERATIONS ON THE WATER FRONT.

Vessels inspected for rat guards.....	21
Reinspections made on vessels.....	33
New rat guards procured.....	21
Defective rat guards repaired.....	5
Vessels on which cargo was inspected.....	1

WEEK ENDED SEPT. 25, 1915—continued.

Amount and description of cargo.	Condition.	Rat evidence.	Amount and description of cargo.	Condition.	Rat evidence.
Steamer Admiral Schley from Seattle: 121 cases milk, coffee, and household goods.....	O. K.	None.	Steamer Admiral Schley from Seattle: 500 sacks bran and flour..	O. K.	None.

Rats trapped on wharves and water front....	43
Rats trapped on vessels.....	12
Traps set on wharves and water front.....	186
Traps set on vessels.....	65
Vessels trapped on.....	12
Poisons placed on water front.....pieces..	3,600
Poisons placed within Panama-Pacific International Exposition grounds.....pieces..	7,200
Bait used on water front and vessels—Bacon.....	pounds.. 6
Amount of bread used in poisoning water front.....	loaves.. 12
Poison used on water front.....	pounds.. 6

RATS COLLECTED AND EXAMINED FOR PLAGUE.

Collected.....	348
Examined.....	286
Found infected.....	None.

RATS IDENTIFIED.

Mus norvegicus.....	162
Mus alexandrinus.....	37
Mus musculus.....	60
Mus rattus.....	89

SQUIRRELS COLLECTED AND EXAMINED FOR PLAGUE.

Counties.	Shot.	Examined.	Found infected.
Contra Costa.....	409	409	1
Monterey.....	180	180	0
San Benito.....	120	120	0
Total.....	709	709	1

RANCHES INSPECTED AND HUNTED OVER.

Contra Costa County.....	36
San Benito County.....	20
Monterey County.....	20
Total.....	76

PLAGUE INFECTED SQUIRRELS.

Contra Costa County:	
Shot Sept. 13, 1915. J. Lynn Ranch, 6½ miles southwest of Antioch, sec. 11, T. 1 N., R. 1 E.....	1

Record of plague inspection.

Places in California.	Date of last case of human plague.	Date of last case of rat plague.	Date of last case of squirrel plague.	Total number rodents found infected since May, 1907.
Cities:				
San Francisco.....	Jan. 30, 1908	Oct. 23, 1908	(1)	398 rats.
Oakland.....	Aug. 9, 1911	Dec. 1, 1908	(1)	126 rats.
Berkeley.....	Aug. 28, 1907	(1)	(1)	None.
Los Angeles.....	Aug. 11, 1908	(1)	Aug. 21, 1908	1 squirrel.
Counties:				
Alameda (exclusive of Oakland and Berkeley).....	Sept. 24, 1909	Oct. 17, 1909 ¹	July 12, 1915	287 squirrels; 1 wood rat.
Contra Costa.....	July 13, 1915	(1)	Sept. 13, 1915	1,593 squirrels.
Fresno.....	(1)	(1)	Oct. 27, 1911	1 squirrel.
Merced.....	(1)	(1)	July 12, 1911	5 squirrels.
Monterey.....	(1)	(1)	Apr. 10, 1914	6 squirrels.
San Benito.....	June 4, 1913	(1)	Aug. 14, 1915	50 squirrels.
San Joaquin.....	Sept. 18, 1911	(1)	Aug. 26, 1911	18 squirrels.
San Luis Obispo.....	(1)	(1)	Jan. 29, 1910	1 squirrel.
Santa Clara.....	Aug. 31, 1910	(1)	July 23, 1913	25 squirrels.
Santa Cruz.....	(1)	(1)	May 17, 1910	3 squirrels.
Stanislaus.....	(1)	(1)	June 2, 1911	13 squirrels.

¹ None.² Wood rat.

The work is being carried on in the following-named counties: Alameda, Contra Costa, San Francisco, Stanislaus, San Benito, and Monterey.

LOUISIANA—NEW ORLEANS—PLAGUE ERADICATION.

The following report of plague eradication work at New Orleans for the week ended October 9, 1915, was received from Surg. Creel, of the United States Public Health Service, in charge of the work:

OUTGOING QUARANTINE.		BUILDINGS RAT PROOFED—continued.	
Vessels fumigated with sulphur.....	5	By concrete floor and wall.....	50
Vessels fumigated with carbon monoxide...	14	By minor repairs.....	51
Vessels fumigated with hydrocyanic gas....	5	Total buildings rat proofed.....	220
Pounds of sulphur used.....	2,894	Square yards of concrete laid.....	5,730
Coke consumed in carbon-monoxide fumigation (pounds).....	21,000	Number of lots and sheds, planking removed	7
Pounds of sodium cyanide used in hydrocyanic-gas fumigation.....	208	Number of buildings demolished.....	29
Pounds of sulphuric acid used in hydrocyanic-gas fumigation.....	208	Total buildings rat proofed to date (abated).	93,124
Clean bills of health issued.....	35	LABORATORY OPERATIONS.	
Foul bills of health issued.....	3	Rodents received by species:	
FIELD OPERATIONS.		Mus rattus.....	191
Rats trapped.....	6,012	Mus norvegicus.....	1,269
Premises disinfected.....	1	Mus alexandrinus.....	176
Premises inspected.....	5,283	Mus musculus.....	4,244
Notices served.....	1,302	Wood rats.....	20
Garbage cans installed.....	50	Musk rats.....	18
BUILDINGS RAT PROOFED.		Putrid (included in enumeration of species).....	91
By elevation.....	55	Total rodents received at laboratory.....	5,918
By marginal concrete wall.....	64	Rodents examined.....	1,817
		Number of suspicious rats.....	10
		Plague rats confirmed.....	1

Plague rats.

Case No.	Address.	Captured.	Diagnosis confirmed.	Treatment of premises.
257	829-837 South Fulton Street.....	Sept. 19, 1915	Oct. 3, 1915	Intensive trapping. Fumigation by cyanide gas. Rat proofing.

Last case of human plague, Sept. 8, 1915.

Last case of rodent plague, Oct. 3, 1915.

Total number of rodents captured to Oct. 9. 460,328

Total number of rodents examined to Oct. 9. 291,595

Total cases of rodent plague to Oct. 9, by species:

Mus musculus.....	5
Mus rattus.....	18
Mus alexandrinus.....	8
Mus norvegicus.....	226

Total rodent cases to Oct. 9..... 257

WASHINGTON—SEATTLE—PLAGUE ERADICATION.

The following reports of plague-eradication work at Seattle were received from Surg. Lloyd, of the United States Public Health Service, in charge of the work:

WEEK ENDED SEPT. 25, 1915.

RAT PROOFING.		RAT PROOFING—continued.	
New building inspected.....	20	New buildings elevated.....	4
New buildings reinspected.....	52	New premises rat proofed, concrete.....	39
Basements concreted, new buildings (square feet, 31,900).....	24	Old buildings inspected.....	4
Floors concreted, new buildings (square feet, 23,750).....	14	Premises rat proofed, concrete, old buildings.	2
Yards, etc., concreted, new structures (square feet, 2,475).....	8	Floors concreted, old buildings (square feet, 4,275).....	1
Sidewalks concreted (square feet).....	1,500	Premises otherwise rat proofed, old buildings	1
Total concrete laid, new structures (square feet).....	59,925	Rat holes cemented, old buildings.....	24
		Wooden floors removed, old buildings.....	1
		Buildings razed.....	2

WEEK ENDED SEPT. 25, 1915—continued.

LABORATORY AND RODENT OPERATIONS.

Dead rodents received.....	20
Rodents trapped and killed.....	231
Total.....	251
Rodents examined for plague infection.....	181
Rodents proven plague infected.....	0
Poison distributed (pounds).....	18
Bodies examined for plague infection.....	2
Bodies found plague infected.....	None.

CLASSIFICATION OF RODENTS.

Mus rattus.....	28
Mus alexandrinus.....	63
Mus norvegicus.....	120
Mus musculus.....	40

WATER FRONT.

Vessels inspected and histories recorded.....	14
Vessels fumigated.....	1
Sulphur used (pounds).....	500
New rat guards installed.....	6
Defective rat guards repaired.....	27
Fumigation certificates issued.....	1
Port sanitary statements issued.....	50

The usual day and night patrol was maintained to enforce rat guarding and fending.

MISCELLANEOUS WORK.

Rat proofing notices sent to contractors, new buildings.....	20
Letters sent in re rat complaints.....	6

RODENTS EXAMINED IN EVERETT.

Mus norvegicus trapped.....	49
Mus norvegicus found dead.....	1
Mus musculus trapped.....	3

Total.....	53
Rodents examined for plague infection.....	51
Rodents proven plague infected.....	None.

RAT PROOFING OPERATIONS IN EVERETT.

New buildings inspected.....	5
New buildings, concrete foundations.....	4
New buildings elevated 18 inches.....	1
New buildings, basements concreted (square feet, 420).....	1
New buildings, yards concreted (square feet, 288).....	2
Total concrete laid, new buildings (square feet).....	708

WEEK ENDED OCT. 2, 1915.

RAT PROOFING.

New buildings inspected.....	29
New buildings reinspected.....	34
Basements concreted, new buildings (square feet, 26,650).....	27
Floors concreted, new buildings (square feet, 48,750).....	25
Yards, etc., concreted, new structures (square feet, 4,575).....	5
Sidewalks concreted (square feet).....	3,275
Total concrete laid, new structures (square feet).....	83,250
New buildings elevated.....	3
New premises ratproofed, concrete.....	52
Old buildings inspected.....	3
Premises otherwise rat proofed, old buildings.....	1
Rat holes cemented, old buildings.....	17
Wooden floors removed, old buildings.....	1
Buildings razed.....	2

LABORATORY AND RODENT OPERATIONS.

Dead rodents received.....	19
Rodents trapped and killed.....	307
Total.....	326
Rodents examined for plague infection.....	231
Rodents proven plague infected.....	0
Poison distributed, pounds.....	18
Bodies examined for plague infection.....	2
Bodies found plague infected.....	0

CLASSIFICATION OF RODENTS.

Mus rattus.....	26
Mus alexandrinus.....	86
Mus norvegicus.....	155
Mus musculus.....	59

WATER FRONT.

Vessels inspected and histories recorded.....	12
Vessels fumigated.....	1
Sulphur used (pounds).....	400
New rat guards installed.....	9
Defective rat guards repaired.....	15
Fumigation certificates issued.....	1
Port sanitary statements issued.....	50

The usual day and night patrol was maintained to enforce rat guarding and fending.

MISCELLANEOUS WORK.

Rat-proofing notices sent to contractors, new buildings.....	20
Letters sent in re rat complaints.....	6

RODENTS EXAMINED IN EVERETT.

Mus norvegicus trapped.....	46
Mus alexandrinus trapped.....	2
Mus musculus trapped.....	3

Total.....	51
Rodents examined for plague infection.....	48
Rodents proven plague infected.....	None.

RAT-PROOFING OPERATIONS IN EVERETT.

New buildings inspected.....	8
New buildings, concrete foundations.....	6
New buildings elevated 18 inches.....	2
New buildings, basements concreted (square feet, 4,916).....	1
New buildings, yards concreted (square feet, 84).....	1
New buildings, floors concreted (square feet, 9,328).....	2
Total concrete laid, new buildings (square feet).....	14,323

HAWAII—PLAGUE PREVENTION.

The following reports of plague-prevention work in Hawaii were received from Surg. Trotter, of the United States Public Health Service:

Honolulu.

WEEK ENDED SEPT. 25, 1915.

Total rats and mongoose taken.....	376	Classification of rats shot from trees:	
Rats trapped.....	310	Mus alexandrinus.....	43
Mongoose trapped.....	3	Mus rattus.....	6
Rats killed by sulphur dioxide.....	14	Average number of traps set daily.....	984
Rats shot from trees.....	49	Cost per rat destroyed.....	214 cents.
Examined microscopically.....	327	Last case rat plague, Aiea, 9 miles from Honolulu,	
Showing plague infection.....	0	Apr. 12, 1910.	
Classification of rats trapped:		Last case human plague, Honolulu, July 12, 1910.	
Mus alexandrinus.....	151	Last case rat plague, Kalopa stable, Paauhau,	
Mus musculus.....	59	Hawaii, Aug. 29, 1914.	
Mus norvegicus.....	66	Last case human plague, Paauhau Landing,	
Mus rattus.....	34	Hawaii, Aug. 16, 1914.	
Classification of rats killed by sulphur dioxide:			
Mus alexandrinus.....	3		
Mus rattus.....	11		

Hilo.

WEEK ENDED AUG. 28, 1915.

Rats and mongoose taken.....	2,298	Classification of rats trapped and found dead:	
Rats trapped.....	2,240	Mus norvegicus.....	437
Mongoose taken.....	58	Mus alexandrinus.....	225
Rats and mongoose examined macroscopically.....	2,298	Mus rattus.....	711
Rats and mongoose found plague infected....	0	Mus musculus.....	867

WEEK ENDED SEPT. 4, 1915.

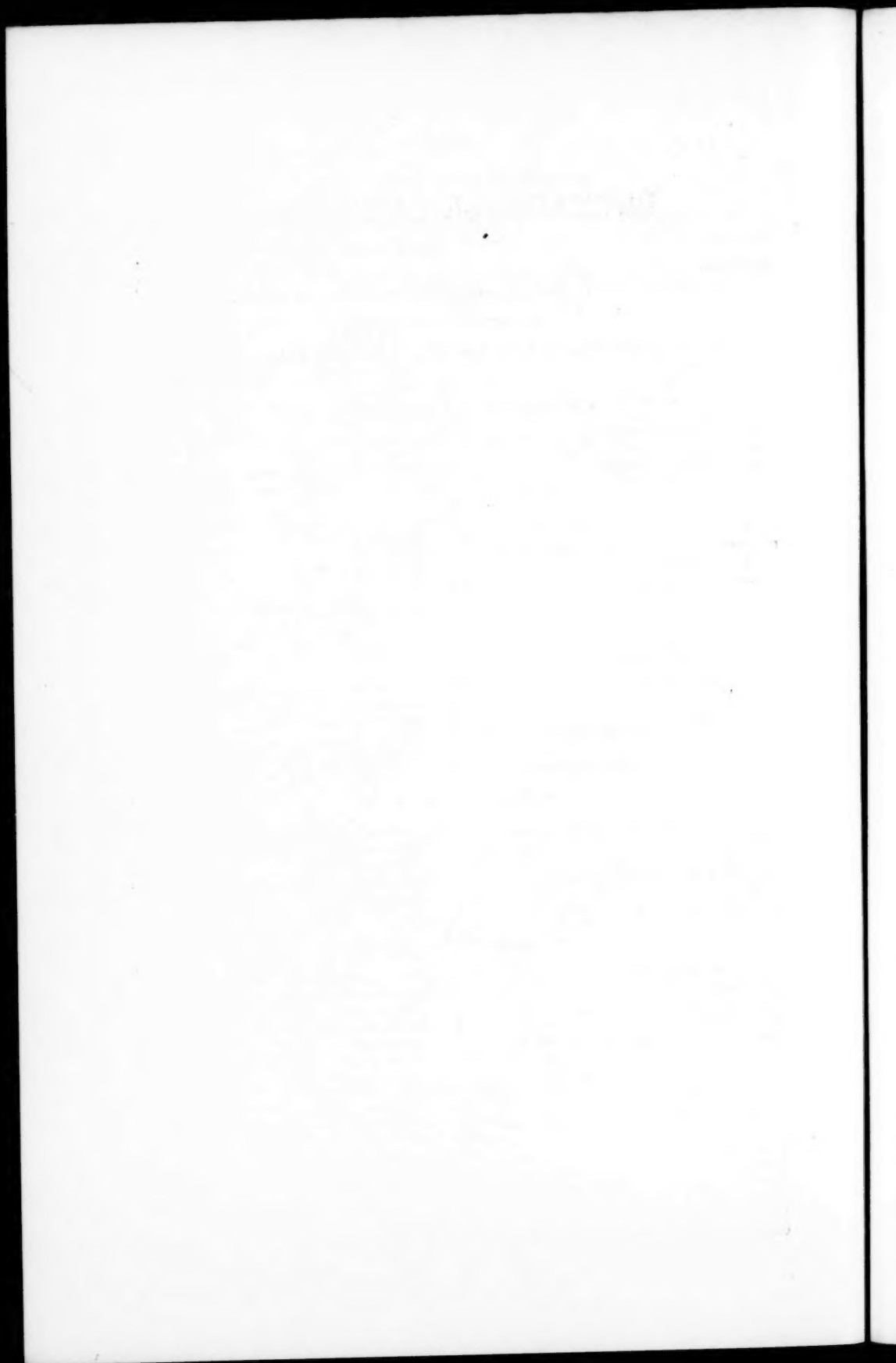
Rats and mongoose taken.....	2,651	Classification of rats trapped and found dead:	
Rats trapped.....	2,611	Mus norvegicus.....	477
Mongoose taken.....	40	Mus alexandrinus.....	330
Rats and mongoose examined macroscopically.....	2,651	Mus rattus.....	713
Rats and mongoose plague infected.....	0	Mus musculus.....	1,091

WEEK ENDED SEPT. 11, 1915.

Rats and mongoose taken.....	3,015	Rats and mongoose plague infected.....	0
Rats trapped.....	2,960	Classification of rats trapped and found dead:	
Rats found dead.....	2	Mus norvegicus.....	483
Mongoose taken.....	53	Mus alexandrinus.....	332
Rats and mongoose examined macroscopically.....	3,015	Mus rattus.....	741
		Mus musculus.....	1,406

WEEK ENDED SEPT. 18, 1915.

Rats and mongoose taken.....	3,173	Classification of rats trapped and found dead—Continued.	
Rats trapped.....	3,139	Mus alexandrinus.....	355
Rats found dead.....	0	Mus rattus.....	754
Mongoose taken.....	34	Mus musculus.....	1,468
Rats and mongoose examined macroscopically.....	3,173	Last case of rat plague, Paauhau Sugar Co., Aug.	
Rats and mongoose plague infected.....	0	29, 1914.	
Classification of rats trapped and found dead:		Last case of human plague, Paauhau Sugar Co.,	
Mus norvegicus.....	582	Aug. 16, 1914.	



PREVALENCE OF DISEASE.

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring.

IN CERTAIN STATES AND CITIES.

CEREBROSPINAL MENINGITIS.

State Reports for September, 1915.

Place.	New cases reported.	Place.	New cases reported.
Maryland:		Massachusetts:	
Allegany County—		Berkshire County—	
Frostburg.....	1	Adams Township.....	1
Baltimore County—		Essex County—	
Oella.....	1	Lawrence.....	2
Frederick County—		Middlesex County—	
Frederick.....	1	Medford.....	1
Howard County—		Suffolk County—	
Ellicott City.....	1	Revere.....	1
Prince Georges County—		Total.....	5
Halls.....	1		
Washington County—			
Hagerstown.....	1		
Total.....	6		

City Reports for Week Ended Oct. 2, 1915.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Boston, Mass.....	2	1	Milwaukee, Wis.....	1	1
Buffalo, N. Y.....	1		New York, N. Y.....	2	2
Chicago, Ill.....	2	3	Pittsfield, Mass.....		1
Cleveland, Ohio.....	2		Rockford, Ill.....		2
Covington, Ky.....	1	1	San Francisco, Cal.....		1
Detroit, Mich.....		1	Superior, Wis.....		1
Los Angeles, Cal.....	1		Wilkes-Barre, Pa.....		1
Medford, Mass.....	1	1			

DIPHTHERIA.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 3161.

ERYSIPELAS.

City Reports for Week Ended Oct. 2, 1915.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Buffalo, N. Y.....	1		Montclair, N. J.....	1	
Canton, Ohio.....	1		New York, N. Y.....		4
Chicago, Ill.....	2		Philadelphia, Pa.....	3	
Cleveland, Ohio.....	2		Pittsburgh, Pa.....	2	
Detroit, Mich.....	4		Reading, Pa.....	1	
Harrisburg, Pa.....	1		St. Louis, Mo.....	3	
Lawrence, Mass.....		4	San Francisco, Cal.....	2	
Los Angeles, Cal.....	1		Seattle, Wash.....	1	
Milwaukee, Wis.....		1			

MALARIA.

State Reports for September, 1915.

During the month of September, 1915, cases of malaria were reported in States as follows: Maryland, 10; Massachusetts, 7; New Jersey, 68.

City Reports for Week Ended Oct. 2, 1915.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Boston, Mass.....	1	.....	Orange, N. J.....	2	.....
Charleston, S. C.....	.....	1	Philadelphia, Pa.....	2	.....
Little Rock, Ark.....	3	.....	Richmond, Va.....	7	.....
Montclair, N. J.....	1	.....	Sacramento, Cal.....	8	.....
Newark, N. J.....	1	.....	Wilmington, N. C.....	2	1
New York, N. Y.....	.....	1			

MEASLES.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 3161.

PELLAGRA.

State Reports for September, 1915.

During the month of September, 1915, cases of pellagra were reported in States as follows: District of Columbia, 1; Massachusetts, 5.

City Reports for Week Ended Oct. 2, 1915.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Charleston, S. C.....	.....	2	Mobile, Ala.....	.....	2
Chicago, Ill.....	.....	1	New Orleans, La.....	2	2
Cleveland, Ohio.....	7	.....	Washington, D. C.....	2	1
Los Angeles, Cal.....	1	.....	Wilmington, N. C.....	1	.....

PNEUMONIA.

City Reports for Week Ended Oct. 2, 1915.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Chicago, Ill.....	47	27	Philadelphia, Pa.....	13	2
Duluth, Minn.....	4	4	Pittsburgh, Pa.....	5	6
Kalamazoo, Mich.....	2	2	Reading, Pa.....	2	.....
Lancaster, Pa.....	1	.....	San Francisco, Cal.....	6	5
Los Angeles, Cal.....	4	3	Stockton, Cal.....	2	2
Newport, Ky.....	2	2			

POLIOMYELITIS (INFANTILE PARALYSIS).**State Reports for September, 1915.**

Place.	New cases reported.	Place.	New cases reported.
Maryland:		Massachusetts—Continued.	
Baltimore City.....	1	Hamden County—	
Baltimore County—		Westfield Township.....	1
Halethorp.....	1	Middlesex County—	
Prince Georges County—		Framingham Township.....	1
Beltsville.....	1	Lowell.....	2
Berwyn R. F. D.....	1	Newton.....	1
Somerset County—		Winchester Township.....	1
Dames Quarter.....	1	Norfolk County—	
Wicomico County—		Medway Township.....	2
Sharptown.....	1	Suffolk County—	
Worcester County—		Boston.....	5
Ocean City.....	1	Total.....	16
Total.....	7		
Massachusetts:		New Jersey:	
Berkshire County—		Essex County.....	1
Pittsfield.....	1	Hudson County.....	1
Essex County—		Mercer County.....	1
Methuen Township.....	1	Total.....	3
Salem.....	1		

City Reports for Week Ended Oct. 2, 1915.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Akron, Ohio.....	5	1	New York, N. Y.....	6	
Boston, Mass.....	1		Pawtucket, R. I.....	2	2
Buffalo, N. Y.....	2		Philadelphia, Pa.....		1
Canton, Ohio.....	4		Pittsburgh, Pa.....	1	
Cincinnati, Ohio.....	1	1	Saginaw, Mich.....	2	
Cleveland, Ohio.....	6		San Diego, Cal.....	1	
Detroit, Mich.....	1		Toledo, Ohio.....	1	1
Los Angeles, Cal.....	1		Zanesville, Ohio.....	1	
Nashville, Tenn.....	1				

SCARLET FEVER.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 3161.

SMALLPOX.**Kansas.**

Collaborating Epidemiologist Crumbine reported that during the week ended October 9, 1915, new cases of smallpox were notified in counties of Kansas, as follows: Republic, 1; Wyandotte, 1.

Minnesota.

Collaborating Epidemiologist Bracken reported by telegraph that during the week ended October 16, 1915, three new foci of smallpox infection were reported in Minnesota, cases of the disease having been notified as follows: Brown County, Cobden, 1; Chippewa County, Clara City, 1; Polk County, East Grand Forks, 2.

City Reports for Week Ended Oct. 2, 1915.

During the week ended October 2, 1915, cases of smallpox were notified in cities as follows: Atlantic City, N. J., 1; Butte, Mont., 2; Davenport, Iowa, 2; Portland, Oreg., 1; Racine, Wis., 1.

TETANUS.

City Reports for Week Ended Oct. 2, 1915.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Boston, Mass.....	1	1	New York, N. Y.....		1
Chicago, Ill.....	1	1	Orange, N. J.....		1
Galveston, Tex.....		1	Philadelphia, Pa.....	2	3
Mobile, Ala.....		2	St. Louis, Mo.....	1	

TUBERCULOSIS.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 3161.

TYPHOID FEVER.

State Reports for September, 1915.

Place.	New cases reported.	Place.	New cases reported.
District of Columbia.....	59	Maryland—Continued.	
Maryland:		Baltimore County—Continued.	
Baltimore City.....	186	North Branch.....	1
Allegany County—		Oella.....	1
Allegany Hospital.....	3	Owings Mills.....	1
Barton.....	1	Parkton.....	1
Borden Shaft.....	1	Parkton R. F. D.....	1
Cumberland.....	13	Pikesville.....	4
Eckhart Mines.....	3	Relay.....	1
Ellerslie.....	1	Riderwood.....	1
Frostburg.....	7	Roland Park.....	1
Lonaconing.....	1	Rosedale.....	1
Luke.....	1	Rossville.....	2
McCoole.....	1	Ruxton.....	2
Midland.....	1	St. Denis.....	1
Rawlings.....	1	St. Mary's Industrial School.....	2
Spring Gap.....	1	Sparrows Point.....	3
Western Maryland Hospital.....	1	Towson.....	1
Westernport.....	3	Turners Station.....	4
Anne Arundel County—		Tuxedo Park.....	1
Annapolis.....	6	Villa Nova.....	1
Annapolis R. F. D.....	1	West Arlington.....	1
Benfield R. F. D.....	2	White Hall.....	1
Camp Parole.....	2	Calvert County—	
Churchton R. F. D.....	1	Sunderland.....	1
Deale.....	1	Wallville.....	1
FortArmstead.....	2	Willows.....	4
Glen Burnie.....	1	Caroline County—	
Glen Burnie R. F. D.....	1	Æthlehem R. F. D.....	1
Laurel R. F. D.....	1	Bridgetown R. F. D.....	2
Mayo.....	3	Greensboro R. F. D.....	1
Tracys Landing.....	2	Goldsboro.....	2
Baltimore County—		Griffin.....	1
Arlington.....	4	Hillsboro R. F. D.....	1
Beaver Dam.....	1	Hynson.....	1
Bentley Springs.....	1	Ridgely.....	1
Canton.....	2	Ridgely R. F. D.....	1
Catonsville.....	3	Carroll County—	
Cokeysville R. F. D.....	1	Middleburg.....	1
Ellicott City R. F. D.....	1	New Windsor.....	1
Freeland.....	1	Oakland Mills.....	3
Fullerton.....	1	Oakland Mills R. F. D.....	1
Gardenville.....	2	Sykesville R. F. D.....	1
Glyndon R. F. D.....	1	Union Bridge.....	2
Giovans.....	3	Union Mills.....	1
Hamilton.....	1	Westminster R. F. D.....	1
Highlandtown.....	4	Woodbine.....	1
Hulls ville.....	2	Woodbine R. F. D.....	1
Landsdowne R. F. D.....	1	Cecil County—	
Lauraville.....	2	Cecilton.....	1
Monkton.....	2	Childs.....	1
Morrell Park.....	1	Elkton.....	1
Mount St. Agnes Convent.....	1	Elkton R. F. D.....	2
Mount Washington.....	1	Perryville.....	1
		Sylmar.....	1

TYPHOID FEVER—Continued.

State Reports for September, 1915—Continued.

Place.	New cases reported.	Place.	New cases reported.
Maryland—Continued.		Maryland—Continued.	
Charles County—		Montgomery County—Continued.	
Berry R. F. D.	1	Lickerson	2
Bryantown	1	Germantown R. F. D.	3
La Plata	1	Kensington	1
La Plata R. F. D.	2	Laurel R. F. D.	1
Malcolm R. F. D.	1	Oakdale	1
Mattawoman R. F. D.	1	Olney	1
Pisces	1	Olney R. F. D.	4
Port Tobacco	1	Sandy Spring	1
Rison	1	Silver Spring	4
Waldorf	1		
Dorchester County—		Prince Georges County—	
Beulah	1	Aquasco	5
Cambridge	2	Branchville	1
Castlehaven	1	Brentwood	2
Choptank R. F. D.	1	Capitol Heights	3
Cordtown	1	Clinton	1
East New Market	3	Forestville	7
Hills Point	2	Friendly	4
Hurlock	2	Hall	1
Hurlock R. F. D.	1	Hyattsville	1
Hynson R. F. D.	1	Lakeland	1
James	1	Landover	1
Madison	1	Laurel	1
Secretary	1	Mitchellville	3
Toddville	1	Mount Rainier	1
Vienna	1	Nottingham	1
Frederick County—		Riverdale	1
Braddock	1	Seat Pleasant	2
Brunswick	2	Suitland	1
Ellerton	2		
Emmitsburg	3	Queen Annes County—	
Frederick	3	Centerville	1
Frederick R. F. D.	1	Centerville R. F. D.	1
Lantz	2	Fords Store	1
Lime Kiln R. F. D.	1	Kent Point R. F. D.	1
New Windsor R. F. D.	2	Millington R. F. D.	1
Sabillasville	2	Queen Anne	1
Thurmont	1	Queenstown	2
Walkersville	1	Sudlersville R. F. D.	4
Walkersville R. F. D.	1		
Garrett County—		St. Marys County—	
Accident	2	Leonardtown	1
Accident R. F. D.	1	Wynne	1
Bond	1		
Frostburg R. F. D.	1	Somerset County—	
Kitzmiller	3	Crisfield	3
Harford County—		Kingston	1
Bel Air	4	Marion	8
Fallston	1	Marion R. F. D.	1
Havre de Grace	2	Princess Anne	1
Joppa	1	West	1
Kalmia	1		
Level	1	Talbot County—	
Perryman	2	Claiborne	1
Rocks	2	Cordova R. F. D.	1
Rocks R. F. D.	2	Easton	4
Whiteford	1	Easton R. F. D.	1
Howard County—		St. Michaels	5
Ellicott City	8	Trappe	3
Ellicott City R. F. D.	1	Neavitt	1
Glenelg	1		
Glenwood	1	Washington County—	
Jonestown	1	Clearspring	1
Lisbon	1	Hagerstown	8
Marriottsville	1	Hancock	3
Kent County—		Smithsburg	1
Betterton	1	Trego	1
Chestertown	3	Weverton R. F. D.	1
Coleman R. F. D.	1		
Millington	1	Wicomico County—	
Rock Hall	5	Bivalve	1
Montgomery County—		Fruitland	2
Boys	1	Jesterville	1
Brookeville	1	Pittsville R. F. D.	2
Chevy Chase R. F. D.	1	Salisbury	6
		Worcester County—	
		Berlin	5
		Berlin R. F. D.	3
		Girdletree R. F. D.	1
		Iron Shire	1
		Ocean City	1

TYPHOID FEVER—Continued.

State Reports for September, 1915—Continued.

Place.	New cases reported.	Place.	New cases reported.
Maryland—Continued.		Massachusetts—Continued.	
Worcester County—Continued.		Middlesex County—Continued.	
Pocomoke City.....	6	Somerville.....	3
Showell.....	3	Wakefield Township.....	2
Snow Hill.....	1	Waltham.....	3
Snow Hill R. F. D.....	1	Watertown Township.....	1
Stockton.....	1	Westford Township.....	1
Total.....	609	Wilmington Township.....	1
Massachusetts:		Winchester Township.....	1
Barnstable County—		Woburn.....	4
Dennis Township.....	1	Nantucket County—	
Provincetown Township.....	3	Nantucket Township.....	1
Berkshire County—		Norfolk County—	
Adams Township.....	1	Bellingham Township.....	2
Becket Township.....	1	Braintree Township.....	2
North Adams.....	1	Brookline Township.....	1
Pittsfield.....	2	Foxborough Township.....	1
Sheffield Township.....	2	Franklin Township.....	1
Bristol County—		Holbrook Township.....	1
Acushnet Township.....	1	Needham Township.....	1
Attleboro.....	1	Plymouth County—	
Dighton Township.....	2	Bridgewater Township.....	3
Easton Township.....	6	Brockton Township.....	5
Fairhaven Township.....	2	Kingston Township.....	1
Fall River.....	19	Plympton Township.....	1
Mansfield Township.....	10	Suffolk County—	
New Bedford.....	19	Boston.....	48
North Attleboro Township.....	2	Chelsea.....	8
Rehoboth Township.....	2	Worcester County—	
Taunton.....	4	Clinton Township.....	2
Essex County—		Fitchburg.....	1
Amesbury Township.....	1	Leominster Township.....	3
Beverly.....	4	Southbridge Township.....	2
Georgetown Township.....	2	Sutton Township.....	1
Gloucester.....	3	Upton Township.....	2
Haverhill.....	7	West Boylston Township.....	1
Lawrence.....	7	Worcester.....	21
Lynn.....	7	Total.....	322
Middleton Township.....	1	New Jersey:	
Newburyport.....	4	Atlantic County.....	
North Andover Township.....	1	Bergen County.....	
Peabody Township.....	1	Burlington County.....	
Rockport Township.....	1	Camden County.....	
Salem.....	1	Cape May County.....	
Saugus Township.....	1	Cumberland County.....	
Franklin County—		Essex County.....	
Greenfield Township.....	1	Gloucester County.....	
Hampden County—		Hudson County.....	
Chicopee.....	5	Mercer County.....	
Holyoke.....	4	Middlesex County.....	
Ludlow Township.....	1	Monmouth County.....	
Springfield.....	11	Morris County.....	
Westfield Township.....	2	Ocean County.....	
Hampshire County—		Passaic County.....	
Easthampton Township.....	1	Salem County.....	
Middlesex County—		Somerset County.....	
Ashby Township.....	3	Union County.....	
Belmont Township.....	1	Warren County.....	
Billerica Township.....	1	Total.....	
Cambridge.....	5	274	
Everett.....	7	Wyoming:	
Framingham Township.....	1	Park County.....	
Lowell.....	20	Washakie County.....	
Malden.....	5	Total.....	
Marlborough.....	3	3	
Medford.....	4		
Newton.....	2		

TYPHOID FEVER—Continued.

City Reports for Week Ended Oct. 2, 1915.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Akron, Ohio.....	2	.....	Mobile, Ala.....	3	.....
Alameda, Cal.....	1	1	Nanticoke, Pa.....	1	.....
Ann Arbor, Mich.....	1	.....	Nashville, Tenn.....	14	1
Atlantic City, N. J.....	1	.....	Newark, N. J.....	4	3
Baltimore, Md.....	29	5	New Bedford, Mass.....	1	1
Binghamton, N. Y.....	3	.....	New Castle, Pa.....	2	.....
Boston, Mass.....	19	.....	New Haven, Conn.....	4	.....
Bridgeport, Conn.....	2	.....	New London, Conn.....	.....	1
Brockton, Mass.....	1	.....	New Orleans, La.....	2	1
Buffalo, N. Y.....	7	2	Newport, Ky.....	1	1
Butler, Pa.....	1	.....	New York, N. Y.....	82	7
Cairo, Ill.....	1	.....	North Adams, Mass.....	1	.....
Cambridge, Mass.....	2	.....	Northampton, Mass.....	1	1
Camden, N. J.....	2	.....	Pawtucket, R. I.....	1	.....
Charleston, S. C.....	6	1	Philadelphia, Pa.....	30	3
Chelsea, Mass.....	.....	1	Pittsburgh, Pa.....	7	.....
Chicago, Ill.....	25	4	Pittsfield, Mass.....	1	.....
Cincinnati, Ohio.....	2	2	Portland, Oreg.....	3	.....
Cleveland, Ohio.....	7	.....	Portsmouth, Va.....	2	.....
Clinton, Mass.....	1	.....	Providence, R. I.....	10	1
Columbus, Ohio.....	2	1	Racine, Wis.....	3	.....
Covington, Ky.....	1	.....	Reading, Pa.....	2	1
Cumberland, Md.....	2	.....	Richmond, Va.....	9	1
Danville, Ill.....	2	.....	Ronoke, Va.....	1	.....
Detroit, Mich.....	21	2	Rutland, Vt.....	2	.....
Duluth, Minn.....	2	.....	Sacramento, Cal.....	2	.....
Evansville, Ind.....	4	1	St. Louis, Mo.....	20	2
Fall River, Mass.....	1	.....	Salt Lake City, Utah.....	4	.....
Fitchburg, Mass.....	4	.....	San Francisco, Cal.....	12	1
Galveston, Tex.....	2	.....	Seattle, Wash.....	2	1
Grand Rapids, Mich.....	3	.....	Somerville, Mass.....	1	.....
Harrisburg, Pa.....	3	.....	Springfield, Ill.....	3	1
Hartford, Conn.....	.....	1	Springfield, Mass.....	2	.....
Jersey City, N. J.....	.....	1	Staubenville, Ohio.....	1	.....
Johnstown, Pa.....	1	.....	Stockton, Cal.....	2	1
Kenosha, Wis.....	.....	1	Taunton, Mass.....	2	.....
Lancaster, Pa.....	3	.....	Toledo, Ohio.....	6	.....
Lawrence, Mass.....	3	1	Trenton, N. J.....	1	.....
Lexington, Ky.....	4	1	Waltham, Mass.....	.....	1
Lincoln, Nebr.....	1	.....	Washington, D. C.....	13	.....
Little Rock, Ark.....	2	.....	Wheeling, W. Va.....	1	1
Los Angeles, Cal.....	2	.....	Wilkesburg, Pa.....	6	1
Lowell, Mass.....	2	2	Williamsport, Pa.....	1	.....
Madison, Wis.....	1	.....	Worcester, Mass.....	3	.....
Manchester, N. H.....	4	.....	York, Pa.....	3	.....
Melrose, Mass.....	1	.....		

TYPHUS FEVER.

Maryland Report for September, 1915.

Collaborating Epidemiologist Fulton reported that during the month of September, 1915, 2 cases of typhus fever were notified in Maryland.

DIPHThERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

State Reports for September, 1915.

State.	New cases reported.			State.	New cases reported.		
	Diphtheria.	Measles.	Scarlet fever.		Diphtheria.	Measles.	Scarlet fever.
District of Columbia.....	20	11	14	Massachusetts.....	507	178	281
Maryland.....	198	51	68	New Jersey.....	436	.....	108
				Wyoming.....	.....	.....	13

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Contd.

City Reports for Week Ended Oct. 2, 1915.

City.	Popula- tion as of July 1, 1915 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Over 500,000 inhabitants:										
Baltimore, Md.	584,605	164	28	2	6	.....	16	2	39	30
Boston, Mass.	745,139	208	49	4	9	.....	16	1	48	17
Chicago, Ill.	2,447,045	541	92	9	35	.....	22	.....	204	59
Cleveland, Ohio.	656,975	170	54	6	13	.....	12	1	22	19
Detroit, Mich.	554,717	171	51	6	5	1	6	.....	44	18
New York, N. Y.	5,468,190	1,209	220	13	32	1	35	.....	453	163
Philadelphia, Pa.	1,683,664	403	36	4	25	3	9	.....	197	43
Pittsburgh, Pa.	571,984	149	41	1	12	.....	25	1	18	13
St. Louis, Mo.	745,988	161	88	4	2	.....	8	1	24	18
From 300,000 to 500,000 inhab- itants:										
Buffalo, N. Y.	461,335	107	26	.....	25	1	12	.....	15	6
Cincinnati, Ohio.	406,706	106	27	3	1	.....	1	.....	25	20
Jersey City, N. J.	300,133	80	14	.....	4	.....	.....	.....	34	12
Los Angeles, Cal.	465,367	99	20	2	3	.....	5	.....	41	16
Milwaukee, Wis.	428,062	98	9	2	5	.....	4	.....	10	1
Newark, N. J.	399,000	85	27	.....	16	1	4	.....	29	10
New Orleans, La.	366,484	126	39	3	1	.....	.....	.....	16	10
San Francisco, Cal.	416,912	117	11	.....	1	.....	12	.....	29	11
Seattle, Wash.	330,834	32	.....	.....	2	.....	2	.....	13	2
Washington, D. C.	358,679	109	1	.....	4	.....	3	3	15	13
From 200,000 to 300,000 inhab- itants:										
Columbus, Ohio.	209,722	61	44	.....	.....	.....	6	.....	7	6
Portland, Oreg.	272,833	36	7	.....	.....	1	5	.....	6	8
Providence, R. I.	250,025	53	14	.....	21	.....	7	.....	.....	6
From 100,000 to 200,000 inhab- itants:										
Bridgeport, Conn.	118,434	22	4	.....	.....	1	1	.....	3	1
Cambridge, Mass.	111,669	28	8	.....	.....	.....	4	.....	.....	4
Camden, N. J.	104,349	.....	2	.....	.....	.....	.....	.....	3	.....
Fall River, Mass.	126,904	30	7	.....	1	1	1	.....	4	3
Grand Rapids, Mich.	125,759	38	6	.....	.....	.....	2	.....	4	.....
Hartford, Conn.	108,969	33	9	1	.....	.....	.....	.....	.....	1
Lowell, Mass.	112,124	39	4	.....	.....	.....	1	.....	1	5
Lynn, Mass.	100,316	20	1	.....	.....	.....	1	.....	1	3
Nashville, Tenn.	115,978	38	4	2	.....	.....	1	.....	6	3
New Bedford, Mass.	114,094	40	6	.....	3	.....	1	.....	12	3
New Haven, Conn.	147,095	.....	.....	.....	.....	.....	.....	.....	8	1
Oakland, Cal.	190,803	.....	3	.....	.....	.....	.....	.....	7	5
Reading, Pa.	105,094	27	1	.....	20	.....	1	.....	.....	1
Richmond, Va.	154,674	44	11	.....	.....	.....	2	.....	3	4
Salt Lake City, Utah.	113,567	14	3	.....	1	.....	1	.....	.....	3
Springfield, Mass.	103,216	12	2	.....	1	.....	.....	.....	3	2
Tacoma, Wash.	108,094	.....	.....	.....	.....	.....	.....	.....	1	.....
Toledo, Ohio.	187,840	55	4	.....	4	.....	5	.....	1	3
Trenton, N. J.	109,212	27	10	1	6	.....	.....	.....	8	4
Worcester, Mass.	160,523	57	8	.....	3	.....	1	.....	9	3
From 50,000 to 100,000 inhab- itants:										
Akron, Ohio.	82,958	24	3	.....	.....	.....	3	.....	.....	1
Altoona, Pa.	57,606	11	3	.....	.....	.....	.....	.....	.....	2
Atlantic City, N. J.	55,806	6	1	.....	.....	.....	.....	.....	1	.....
Bayonne, N. J.	67,582	.....	2	.....	2	.....	.....	.....	2	.....
Berkeley, Cal.	54,879	5	.....	.....	.....	.....	1	.....	.....	1
Binghamton, N. Y.	53,082	17	3	1	.....	.....	.....	.....	5	1
Brockton, Mass.	65,746	13	8	.....	.....	.....	6	.....	.....	.....
Canton, Ohio.	59,139	6	2	.....	.....	.....	5	.....	1	.....
Charleston, S. C.	60,427	33	3	1	.....	.....	.....	.....	.....	.....
Covington, Ky.	56,520	9	1	.....	.....	.....	.....	.....	2	1
Duluth, Minn.	91,913	.....	1	.....	.....	.....	2	.....	1	1
Evansville, Ind.	72,125	18	6	.....	.....	.....	.....	.....	.....	4
Harrisburg, Pa.	70,754	19	3	.....	.....	.....	.....	.....	5	1
Johnstown, Pa.	66,585	20	5	.....	1	.....	.....	.....	4	.....
Lancaster, Pa.	50,269	.....	2	.....	.....	.....	.....	.....	.....	.....
Lawrence, Mass.	98,197	.....	5	.....	11	.....	3	.....	5	2
Little Rock, Ark.	55,158	19	5	.....	.....	.....	.....	.....	2	.....
Malden, Mass.	50,067	11	2	1	.....	.....	2	.....	.....	.....
Manchester, N. H.	76,959	23	3	.....	.....	.....	.....	.....	1	1

1 Population Apr. 15, 1910; no estimate made.

DIPHThERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Contd.

City Reports for Week Ended Oct. 2, 1915—Continued.

City.	Popula- tion as of July 1, 1915 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
From 50,000 to 100,000 inhabit- ants—Continued.										
Mobile, Ala.	56,536	18								
New Britain, Conn.	52,203		2	1	1				5	1
Passaic, N. J.	69,010	12	2		1		3		2	
Pawtucket, R. I.	58,156	20					3			
Rockford, Ill.	53,761	26	1				1			3
Sacramento, Cal.	64,806	17	2				1		4	1
Saginaw, Mich.	54,815	16	2				1		2	
San Diego, Cal.	51,115	15	9				1		4	4
Somerville, Mass.	85,460	25	1				3		3	1
South Bend, Ind.	67,030	11	10	1						
Springfield, Ill.	59,468	20	17	1			2		1	1
Wilkes-Barre, Pa.	75,218	35	9				1		1	2
Wilmington, N. C.	93,161	15	2						3	2
York, Pa.	50,543		1						3	
From 25,000 to 50,000 inhabit- ants:										
Alameda, Cal.	27,031	6					1	1	2	2
Auburn, N. Y.	36,947	4	1	1						
Brookline, Mass.	31,934	3			3		1			
Butler, Pa.	26,587	7							3	
Butte, Mont.	42,918	18	1						1	
Chelsea, Mass.	32,452	13			1				2	
Cumberland, Md.	25,564	5								
Danville, Ill.	31,554	8								
Davenport, Iowa.	47,127		1				1			
Dubuque, Iowa.	39,650						1			
East Orange, N. J.	41,155	10	1						1	2
Elgin, Ill.	27,844	6								
Everett, Mass.	38,307	4	3				1		4	
Fitchburg, Mass.	41,144	10	36						2	2
Galveston, Tex.	41,076	18	1	2						2
Haverhill, Mass.	47,774	8	34	1			6		2	1
Kalamazoo, Mich.	47,364	14							3	3
Kenosha, Wis.	30,319	7							2	1
Knoxville, Tenn.	38,300						1			
La Crosse, Wis.	31,522	14							1	1
Lexington, Ky.	39,703	12	3				1		1	
Lima, Ohio.	34,644	7	1							
Lincoln, Nebr.	46,028	14	2		1		2	1		
Lorain, Ohio.	35,662	1	1				2			
Lynchburg, Va.	32,385	9	2				1		1	1
Madison, Wis.	30,084				12					
Medford, Mass.	25,737	8								1
Montclair, N. J.	25,550	6							1	
New Castle, Pa.	40,351		4							
Newport, Ky.	31,722	12								
Newport, R. I.	29,631	8	2	1					1	1
Newton, Mass.	43,085	13	1						1	
Niagara Falls, N. Y.	36,240	10			4				5	
Norristown, Pa.	30,833	1	1		1					
Orange, N. J.	32,524	6	1						6	
Pasadena, Cal.	43,859	3		1					4	
Perth Amboy, N. J.	39,725		18							
Pittsfield, Mass.	37,580	7							2	
Portsmouth, Va.	28,126	8	3							3
Racine, Wis.	45,507	12	4							
Roanoke, Va.	41,929	9	43						1	
Rock Island, Ill.	27,961	6	1				2			
Steubenville, Ohio.	26,631	13								
Stockton, Cal.	34,508		4	1					2	
Superior, Wis.	45,285	6					1			
Taunton, Mass.	35,957	16			3				4	1
Waltham, Mass.	30,129	7	5	1	3		1		1	1
West Hoboken, N. J.	41,893	6	1						2	
Wheeling, W. Va.	43,097	17					2			1
Williamsport, Pa.	33,495	7	8				1			
Zanesville, Ohio.	30,496						2			

* Population Apr. 15, 1910; no estimate made.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Contd.

City Reports for Week Ended Oct. 2, 1915—Continued.

City.	Popula- tion as of July 1, 1915 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
From 10,000 to 25,000 inhabit- ants:										
Ann Arbor, Mich.....	14,979	6	2						1	
Beaver Falls, Pa.....	13,316						1			
Cairo, Ill.....	15,593	5								
Clinton, Mass.....	¹ 13,075	6								
Concord, N. H.....	22,480	9								
Galesburg, Ill.....	23,923	7								
Harrison, N. J.....	16,555				1					
Kearny, N. J.....	22,753	6	2						2	
Key West, Fla.....	21,437	3								
Marinette, Wis.....	¹ 14,610	1					2		1	
Melrose, Mass.....	17,166	2	1							
Morristown, N. J.....	13,158	1								
Muscatine, Iowa.....	17,287	7								
Nanticoke, Pa.....	22,441	2	2						2	
Newburyport, Mass.....	15,195	5	1							
New London, Conn.....	20,771	5	1							
North Adams, Mass.....	¹ 22,019	4					1			
Northampton, Mass.....	19,846	11					3		3	
Phoenix, Ariz.....	17,798	14								
Plainfield, N. J.....	23,280	7								
Rutland, Vt.....	14,624	6					1			
Saratoga Springs, N. Y.....	12,842	8					1			
Steelton, Pa.....	15,337	3	1	1					1	
Wilkinsburg, Pa.....	22,361	5	1							
Woburn, Mass.....	15,862	2								1

¹ Population Apr. 15, 1910; no estimate made.

FOREIGN REPORTS.

AUSTRIA-HUNGARY.

Cholera.

Cholera has been notified in Austria-Hungary as follows:

Austria.—August 8-14, 1915, 3,775 cases with 2,008 deaths. Of this number, 70 cases with 6 deaths occurred among prisoners, 88 cases with 7 deaths among troops, and 3,617 cases with 1,996 deaths in the civil population. The largest number of cases occurred in Galicia, with 3,532 cases with 1,979 deaths notified in 251 communities.

Hungary.—August 9-15, 1915, 388 cases with 242 deaths, and an additional number of 18 cases with 10 deaths notified for the period from July 20 to August 1, 1915.

BORNEO.

Cholera.

Cholera was reported present in epidemic form at the seaport of Bandjermasin, Dutch Borneo, August 13, 1915, and during the week ended August 28, 1915, 8 cases of cholera with 4 deaths were notified at Bode, on Sandakan Bay, British Borneo.

CHINA.

Examination of Rats—Shanghai.

During the week ended September 4, 1915, 174 rats were examined at Shanghai. No plague infection was found.

Plague—Examination of Rats—Hongkong.

During the week ended August 28, 1915, 2 cases of plague with 2 deaths were notified at Hongkong.

During the same period 2,089 rats were examined at Hongkong, No plague infection was found.

CUBA.

Communicable Diseases—Habana.

During the 10-day period ended September 20, 1915, communicable diseases were notified in Habana as follows:

Disease.	New cases.	Deaths.	Remain- ing under treatment Sept. 20.
Diphtheria.....	3	.....	4
Leprosy.....	.....	.....	250
Malaria.....	.....	.....	2
Measles.....	.....	.....	2
Scarlet fever.....	2	.....	3
Typhoid fever.....	5	3	33

DUTCH EAST INDIES.

Plague—Java.

During the period from July 1 to 29, 1915, plague was notified in east Java as follows:

District.	Cases.	Deaths.
Kediri.....	35	38
Paseroean.....	26	22
Surabaya.....	23	23
Surakarta.....	8	8
Total.....	112	106

GERMANY.

Cholera.

During the week ended September 11, 1915, 3 cases of cholera were notified in Germany among civilians. During the same period cholera was reported present in prison camps in the government districts of Bromberg, Frankfort, Magdeburg, Marienwerder, Oppeln, and Potsdam, and at Berlin in a lazaretto for reservists.

PERSIA.

Cholera—Tabriz and Vicinity.

Information dated August 26, 1915, shows the occurrence of an outbreak of cholera in Tabriz and vicinity. Ten fatal cases were notified.

TYPHUS FEVER.

Reports Received During Week Ended Oct. 22, 1915.¹

Place.	Date.	Cases.	Deaths.	Remarks.
Dutch East Indies:				
Java.....	Aug. 22-28.....	22	1	Among prisoners in the districts of Marienwerder, Oppeln, and Posen.
Germany.....	Sept. 5-11.....	5		
Japan:				
Hakodate.....	Aug. 29-Sept. 4....	1		
Switzerland:				
St. Gall.....	Sept. 5-11.....	1		
Turkey in Asia:				
Jaffa.....	Aug. 15-21.....	1		

¹ From medical officers of the Public Health Service, American consuls, and other sources.

TYPHUS FEVER—Continued.

Reports Received from June 26 to Oct. 15, 1915.

Place.	Date.	Cases.	Deaths.	Remarks.
Austria-Hungary:				
Austria.....	Apr. 25-May 22....	1,212		Mainly among soldiers, prisoners of war, and persons from Galicia; 6 among the civil population, of which 1 in Vienna.
Do.....	June 6-Aug. 21....	4,033		Mainly among military.
Bosnia-Herzegovina.....	May 2-15.....	64		
Hungary—				
Budapest.....	May 16-Aug. 14....	26	6	
Azores:				
Terceira.....	May 23-29.....	1		July 24, 1915; present.
Canada:				
Ontario—				
Kingston.....	Aug. 22-28.....	1	1	
Canary Islands:				
Santa Cruz de Tenerife.....	May 16-Sept. 11....		3	
China:				
Antung.....	June 29-Aug. 29....	2		
Hankow.....	July 4-10.....		1	
Harbin.....	July 5-11.....	1		
Hungtaohotze Station.....	Apr. 19-25.....	1		On Eastern Chinese Ry.
Mukden.....	June 6-July 3.....			Present.
Tientsin.....	do.....		1	
Cuba:				
Santiago.....	July 4-10.....	2	2	
Curaçao.....	Aug. 8-14.....	4	1	
Dominican Republic:				
Santo Domingo.....	July 19-Aug. 31....		2	
Dutch East Indies:				
Java.....	Apr. 25-Aug. 14....	80	11	
Batavia.....	June 6-Aug. 7.....	52	10	
Egypt:				
Alexandria.....	May 21-Sept. 9....	156	46	
Cairo.....	May 7-July 15....	251	259	
Port Said.....	do.....	10	8	
France:				
La Rochelle.....	July 11-17.....	1	1	
Germany.....	May 16-22.....	12		In German soldiers and 1 prison-camp employee; among prisoners of war in 14 districts and in Saxony and Hesse.
Do.....	June 6-26.....	33		Among military and prisoners.
Do.....	June 27-Sept. 4....	139		
Aix la Chapelle.....	May 30-June 5.....		1	
Bavaria.....	July 11-Aug. 7.....	3		
Berlin.....	Aug. 22-28.....	1		
Bremen.....	May 30-June 12....	1	1	
Breslau.....	May 30-Aug. 7.....	6		
Bromberg—				
Government district....	July 18-Aug. 28....	10		
Cassel—				
Government district....	July 18-24.....	1		
Erfurt—				
Government district....	July 11-17.....	1		
Frankfort—				
Government district....	July 18-24.....	1		
Hamburg.....	July 25-31.....	1	1	
Königsberg—				
Government district....	June 6-Sept. 4....	5		
Leipzig.....	June 6-12.....		1	
Merseburg—				
Government district....	July 25-31.....	1		
Posen.....	Aug. 29-Sept. 4....			In prison camp.
Saxe-Weimar.....	July 11-17.....	10		At Jena.
Saxony.....	July 18-24.....	27		
Stettin—				
Government district....	July 25-31.....	1		
Great Britain and Ireland:				
Cork.....	Aug. 22-28.....	1		
Dublin.....	May 23-July 31....	7		
Glasgow.....	May 29-Aug. 21....	3		
Newcastle.....	June 27-July 3.....	1		
Greece:				
Athens.....	June 14-July 19....		4	
Saloniki.....	May 30-Sept. 4....		122	
Italy:				
Florence.....	May 1-31.....	5	1	
Turin.....	May 17-23.....	1		
Japan:				
Tokyo.....	June 7-13.....	2		

TYPHUS FEVER—Continued.

Reports Received from June 26 to Oct. 15, 1915—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Mexico:				
Aguascalientes.....	June 21-Sept. 12....		2	
Mexico City.....	Aug. 28.....	1	1	
Russia:				
Moscow.....	May 2-Aug. 22.....	322	62	
Petrograd.....	May 9-Aug. 14.....	19	4	
Riga.....	Mar. 1-Aug. 7.....	7	1	
Vladivostok.....	June 15-July 14....	2	1	
Warsaw.....				Sept. 27-Oct. 31, 1914: Cases, 31; Nov. 1-28, 1914: Cases, 31; deaths, 1. Maximum incidence, Nov. 22-28: Cases, 20; deaths, 1.
Serbia.....	Apr. 27.....			Prevalent.
Spain:				
Madrid.....	June 1-Aug. 31....		4	
Switzerland:				
St. Gall.....	July 25-Aug. 28....	2		
Zurich.....	May 30-July 10....	2		
Turkey in Asia:				
Adana.....	May 9-July 10....			Present.
Beirut.....	May 27-Aug. 14....	4	1	
Harpur.....	Apr. 1-30.....			Present.
Jaffa.....	Apr. 25-Aug. 14....	18	11	July 31, present in vicinity.
Mersina.....	May 9-29.....	2	2	
Tarsus.....	May 9-July 10....			Present.
Trebizond.....				Oct., 1914-May 22, 1915; 6,000 fatal cases (estimated).
Tripoli.....	May 9-15.....	1	1	

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX.

Reports Received During Week Ended Oct. 22, 1915.¹

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
Austria-Hungary:				
Austria.....	Aug. 8-14.....	3,775	2,008	
Hungary.....	Aug. 9-15.....	388	242	Additional cases reported from July 20 to Aug. 1, 1915, 18, with 10 deaths.
Borneo:				
Bandjermasin.....	Aug. 13.....			Epidemic.
Bode.....	Aug. 22-28.....	8	2	On Sandakan Bay.
Dutch East Indies:				
Batavia.....	.....do.....	14	9	
Cheribon.....	.....do.....	7	6	
Germany.....				Sept. 5-11, 1915: Cases, 3; deaths 1; among civilians.
Berlin.....	Sept. 5-11.....			Present.
Government districts--				
Bromberg.....	.....do.....			In prison camps.
Frankfort.....	.....do.....			Do.
Magdeburg.....	.....do.....			Do.
Munster.....	.....do.....	1		
Oppeln.....	.....do.....			Do.
Potsdam.....	.....do.....			Do.
Stettin.....	.....do.....	2	1	
India:				
Bombay.....	Aug. 29-Sept. 4....	1	1	
Benavala.....	Aug. 1-21.....		21	
Myingyan.....	Aug. 8-14.....		23	
Pakoku.....	.....do.....		20	
Pangoon.....	Aug. 22-28.....	1	1	
Persia:				
Tabriz.....	Aug. 26.....	10	10	And vicinity.

¹ From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.**Reports Received During Week Ended Oct. 22, 1915—Continued.****PLAGUE.**

Place.	Date.	Cases.	Deaths.	Remarks.
Ceylon:				
Colombo.....	Aug. 22-28.....	2	2	
Dutch East Indies:				
Java.....				Aug. 8-14, 1915: Cases, 58; deaths, 57.
Provinces—				
Kediri.....	Aug. 8-14.....	32	31	
Paseroean.....	do.....	7	8	
Surabaya.....	do.....	8	8	
Surakarta.....	do.....	8	7	
Surabaya.....	Aug. 13-19.....	3	3	
Egypt:				
Alexandria.....	Sept. 11.....	1	1	
Gizeh, province.....	Sept. 15.....	1	1	
India:				
Bombay.....	Aug. 29-Sept. 8....	8	8	
Rangoon.....	Aug. 22-28.....	11	11	

SMALLPOX.

Australia:				
Newcastle district.....	Aug. 27-Sept. 2....	17		
Sydney.....	do.....	2		
Austria-Hungary:				
Austria—				
Vienna.....	Aug. 22-28.....		1	
Brazil:				
Rio de Janeiro.....	do.....	8		
Canada:				
Montreal.....	Oct. 3-9.....	1		
Ceylon:				
Colombo.....	Aug. 22-28.....	13		
China:				
Amoy.....	Aug. 28.....			Present.
Dutch East Indies:				
Java.....	Aug. 15-28.....	107	28	Sept. 5-11, 1915: 1 case.
Germany:				
Oppeln, Government district.....	Sept. 5-11.....	1		
India:				
Bombay.....	Aug. 29-Sept. 4....	5	7	
Rangoon.....	Aug. 22-28.....	5		
Mexico:				
Aguaascalientes.....	Sept. 20-Oct. 2....		3	
Spain:				
Valencia.....	Sept. 19-25.....	9	2	

Reports Received from June 26 to Oct. 15, 1915.**CHOLERA.**

Place.	Date.	Cases.	Deaths.	Remarks.
Austria-Hungary:				
Austria.....	May 2-Aug. 7.....	9,933	4,328	
Vienna.....	May 9-15.....	9	3	Among soldiers and prisoners.
Trieste.....	June 27-Aug. 7.....	12	5	4 carriers.
Bosnia-Herzegovina.....	Apr. 25-July 31....	311	140	202 cholera carriers.
Croatia-Slavonia.....	May 3-Aug. 16.....	819	317	14 among soldiers.
Hungary.....	Apr. 26-Aug. 8.....	1,744	830	May 16-23; 5 additional cases notified.
Budapest.....	June 28-July 10....	2		
Borneo:				
Sandakan.....	July 18-31.....	7	5	Within jail limits.
Ceylon:				
Colombo.....	Apr. 25-May 22....	8	1	
China:				
Hongkong.....	May 2-8.....	1	1	
Dutch East Indies:				
Java—				
Batavia.....	Apr. 25-Aug. 7....	67	58	Sept. 3, 1915; epidemic.

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.

Reports Received from June 26 to Oct. 15, 1915—Continued.

CHOLERA—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Germany.	July 24-Aug. 14.	392	54	
Allenstein.	Aug. 22-28.	1		
Berlin.	July 18-Aug. 7.	3	2	Among soldiers.
Berlitz.	July 18-21.	1		Do.
Brandenburg on the der.	Aug. 15-21.	2	1	
Breslau.	July 18-Sept. 4.	5		3 military.
Bromberg.	July 25-Aug. 28.	2		Among soldiers.
Canstatt.	do.	1		Do.
Government districts—				
Arnsberg.	Aug. 2-14.	3	1	
Breslau.	June 13-Aug. 14.	6		
Frankfort.	Aug. 8-21.	2	1	
Gumbinnen.	June 13-Aug. 28.	2		
do.	do.	5	1	
Koslin.	Aug. 8-28.	4	8	
Liegnitz.	June 13-Aug. 28.	4	3	
Luneburg.	Aug. 1-7.	1	1	
Magdeburg.	do.	1		
Marienwerder.	June 13-Aug. 21.	603	116	
Mersburg.	Aug. 8-14.	12		
Minden.	Aug. 1-7.	2	1	
Oppeln.	June 13-Aug. 28.	37	4	
Potsdam.	June 13-Aug. 21.	4	1	
Stade.	Aug. 1-7.	2		
Stettin.	Aug. 1-21.	4	1	
Wiesbaden.	June 13-Aug. 7.	1		
Danzig.	July 18-Sept. 4.	19	8	
Danzig-Troyl.	Aug. 15-28.	17	7	
Erfurt.	Aug. 22-28.	1	1	
Frankfort on Oder.	do.	2		
Furstenwalde and Klotzsch.	Aug. 8-14.	4	4	Aug. 15-21, 1915; 1 case, at Klotzsch.
Hamburg.	Aug. 1-14.	4		
Hanover.	July 25-31.	1		Among soldiers.
Jacobsdorf.	June 13-July 2.	1		
Landsberg.	July 25-31.	1		Do.
Leipzig.	do.	1		Do.
Patschkau.	July 18-24.	1		Do.
Posen.	July 25-31.	1		Do.
Rosenberg.	June 13-July 2.	1		
Sachsenhausen.	do.	1	1	
Saxony, Kingdom.	Aug. 15-28.	2		
Schneidemuhl.	July 25-31.	1		Do.
Silesia.	July 3-17.	5		
Slaventzitz.	June 13-July 2.	1		
Sommerfeld.	July 18-24.	1		Do.
Spandau.	July 25-31.	1		Do.
Striegau.	July 18-24.	1	1	Do.
India:				
Akyab.	May 16-July 31.		7	
Bassein.	Apr. 18-July 31.		34	
Bombay.	June 6-Aug. 21.	8	7	
Calcutta.	Apr. 25-Aug. 21.		218	
Karachi.	Aug. 1-7.	1	1	
Madras.	May 2-Aug. 28.	18	10	
Myingyan.	July 25-31.	1		
Pegu.	July 4-10.	1		
Rangoon.	Apr. 24-July 31.	15	14	
Indo-China.				Jan. 1-31, 1915: Cases, 284; deaths, 178.
Provinces—				
Anam.	Jan. 1-Feb. 28.	9	5	
Cochin China.	do.	621	297	
Laos.	Feb. 1-28.	46	21	
Tonkin.	Jan. 1-Feb. 28.	84	39	
Saigon.	May 2-Aug. 14.	1,319	827	
Italy:				
Leithorn.	Aug. 11.	1		
Venice.	do.	3		
Russia:				
Moscow.	June 6-12.	75	14	
Serbia.	June 25-July 2.	2		
Siam:				
Bangkok.	Apr. 19-Aug. 7.		8	
Straits Settlements:				
Singapore.	May 9-July 31.	4	3	
Sumatra, island—				
Toba district.	Apr. 12-June 26.	159	110	

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.

Reports Received from June 26 to Oct. 15, 1915—Continued.

YELLOW FEVER.

Place.	Date.	Cases.	Deaths.	Remarks.
Brazil:				
Bahia.....	July 11-17.....	1	1	
Canal Zone:				
Balboa quarantine.....	Sept. 27.....	1		In person arrived from Buena-venture, Colombia.

PLAGUE.

Azores:				
Terceira, island.....	July 25.....			Present.
Bahrein, island.....	Apr. 1-33.....			Do.
Brazil:				
Bahia.....	June 20-Aug. 14....	6	5	
Ceylon:				
Colombo.....	May 9-Aug. 21....	27	15	
China:				
Amoy.....	May 2-June 5.....			Present. Present in Sio-Kho Valley, 60 miles inland.
Do.....	June 13-19.....			Increasing.
Do.....	June 20-26.....			40 deaths daily (estimated). At Kulangsu, international settlement, 1 case.
Do.....	June 27-Aug. 14....			Present. July 4-17, 1915: Cases, 95 (estimated).
Hongkong.....	May 9-July 31....	72	66	
Cuba:				
Havana.....	Aug. 15.....	1		
Dutch East Indies:				
Java.....	Mar. 12-July 31....	2,227	1,111	Jan. 1-Feb. 25, 1915: Cases, 2,094; deaths, 1,861.
Do.....	do.....	92	85	
Kediri residency.....	do.....	5	5	
Madison residency.....	Mar. 12-July 15....	55	48	
Paseroean residency.....	Mar. 12-July 31....	37	37	
Surabaya residency.....	do.....	10	10	
Surakarta residency.....	do.....			
Ecuador:				
Guayaquil.....	May 1-31.....	1		
Egypt:				
Alexandria.....	May 21-Aug. 19....	2	1	Jan. 1-May 20, 1915: Cases, 93; deaths, 48. Jan. 1-July 15, 1915: Cases, 188. Corresponding period, 1914: Cases, 157.
Assiout, province.....	May 14-June 3.....	7	2	
Fayoum, province.....	May 14-Sept. 2....	54	10	
Galioubeh, province.....	May 14-27.....	1		
Minieh, province.....	May 14-July 15....	14	5	
Port Said.....	May 28-Sept. 4....	13	6	
Greece:				
Zante.....	Aug. 1-11.....	12	13	
India:				
Bassein.....	Apr. 18-Aug. 7.....		70	
Bombay.....	May 2-Aug. 28.....	193	169	
Calcutta.....	Apr. 25-July 3.....		59	
Henzada.....	May 2-8.....	1		
Karachi.....	May 2-Aug. 28.....	626	543	
Mandalay.....	Apr. 25-July 31....		17	
Moulmein.....	May 23-July 24....		9	
Myingyan.....	Apr. 5-17.....		1	
Pegu.....	Apr. 18-May 1.....		5	
Rangoon.....	Apr. 18-Aug. 21....	245	200	Apr. 1-May 31, 1915: Cases, 94; deaths, 92.
Toungoo.....	Apr. 25-May 1.....		38	
Indo-China:				
Saigon.....	May 9-Aug. 14....	17	9	Jan. 1-31, 1915: Cases, 73; deaths 58.
Provinces—				
Anam.....	Jan. 1-Feb. 28.....	62	54	
Cambodia.....	do.....	37	34	
Cochin China.....	do.....	40	19	
Laos.....	Feb. 1-28.....	23	20	
Japan:				
Taiwan Island—				
Kagi.....	May 30-July 3.....	7	7	
Tokyo.....	May 31-Aug. 8.....	9	5	
Mauritius.....	June 14.....	1		
Persia:				
Mohammerah.....	Apr. 10-June 1....	3		

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.

Reports Received from June 26 to Oct. 15, 1915—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Peru.....				Year 1914: Cases, 760; deaths, 385. Jan. 1-June 30, 1915: Cases, 278; deaths, 140.
Callao.....	May 3-9.....	1		May 30, vicinity.
Lima (city).....	do.....	1		May 30, 7 cases in hospital.
Mollendo.....	May 3-July 25.....	2		
Salaverry.....	Apr. 26-May 27.....	2		
Trujillo.....	May 3-9.....	2		
Provinces—				
Ancachs.....	Jan. 1-Dec. 31, 1914.....	34	20	
Arequipa.....	do.....	54	24	
Callamarca.....	do.....	16	7	
Callao.....	do.....	14	8	
Lambayeque.....	do.....	167	47	
Libertad.....	do.....	335	176	
Lima.....	do.....	106	48	
Piura.....	do.....	94	55	
Provinces—				
Ancachs.....	Jan. 1-June 30, 1915.....	6	4	
Arequipa.....	do.....	19	11	
Callao.....	do.....	22	8	
Junin.....	do.....	1	1	
Lambayeque.....	do.....	68	24	
Libertad.....	do.....	67	42	
Lima.....	do.....	51	32	
Piura.....	do.....	44	27	
Siam:				
Bangkok.....	July 4-Aug. 7.....	3	2	
Straits Settlements:				
Singapore.....	Apr. 25-June 5.....	4	1	
Turkey in Asia:				
Bagdad.....	May 2-July 26.....	768	574	
Chios, island.....	Aug. 6.....			Present.
Union of South Africa:				
Cape Province—				
Tarka, district.....	June 2-16.....	2	1	
Wodehouse, district.....	June 5.....	2	2	At Dordrecht.
Zanzibar:				
Zanzibar.....	Mar. 1-31.....		1	

SMALLPOX.

Arabia:				
Aden.....	Aug. 19-25.....	1	1	
Australia:				
New South Wales—				
New Castle District.....				June 10-Aug. 5: Cases, 17.
Cessnock.....	June 10-Aug. 2.....	5		
Hamilton.....	July 16-22.....	1		
Islington.....	Aug. 3-19.....	1		
Kurri Kurri.....	May 26-July 22.....	8		
Moreweather.....	Aug. 3-19.....	1		
Newcastle.....	Aug. 20-26.....	1		
Plattsburg.....	July 16-22.....	1		
Standford Morthyr.....	June 25-July 24.....	1		
Wickham.....	Aug. 3-19.....	1		
Victoria—				
Melbourne.....	Apr. 20.....	1		At Point Nepean quarantine station, from S. S. Lord Derby from Rangoon.
Western Australia—				
Freemantle.....	Apr. 27.....	1		At Woodmans Point quarantine station, from S. S. City of Baroda from Calcutta via Colombo.
Austria-Hungary:				
Austria.....	May 2-July 31.....	4,533		
Dalmatia, Province.....	May 2-8.....	1		
Vienna.....	May 2-Aug. 14.....	37	9	August, 1914-May 8, 1915: Cases, 1,487; deaths, 316. May 9-15, 1915: Cases, 28. June 6-12: 13.
Hungary—				
Budapest.....	do.....	291	1	
Prague.....	Aug. 1-21.....	5		
Brazil:				
Rio de Janeiro.....	Apr. 18-Aug. 7.....	168	63	
Rio Grande do Sul.....	Sept. 2.....			Epidemic.

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.

Reports Received from June 26 to Oct. 15, 1915—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Canada:				
Alberta—				
Edmonton.....				Epidemic 30 miles south closed Aug. 14, 1915: Cases, 100 (estimated).
Ontario—				
Hamilton.....	June 1-30.....	2	4	
Peterborough.....	July 10-17.....		1	
Sarnia.....	June 13-19.....	1		
Toronto.....	June 6-Aug. 7.....	7		
Quebec—				
Montreal.....	June 13-Oct. 2.....	14		
Sherbrooke.....	June 1-30.....		1	
Canary Islands:				
Santa Cruz de Teneriffe.....	July 18-24.....		1	
Ceylon:				
Colombo.....	May 2-Aug. 7.....	161	24	
China:				
Amoy.....	July 4-Aug. 14.....			Present.
Chungking.....	May 23-June 19.....			Do.
Foochow.....	May 9-22.....			Do.
Harbin.....	May 3-9.....	1		
Hongkong.....	May 9-Aug. 7.....	9	6	
Mauchuria Station.....	June 21-27.....	2		Eastern Chinese Railway.
Nanking.....	June 20-Sept. 4.....			Present.
Shanghai.....	May 9-July 3.....	5	5	Natives.
Tientsin.....	May 16-22.....		1	
Dutch East Indies:				
Java.....	Apr. 18-Aug. 7.....	718	173	
Batavia.....	Apr. 25-July 17.....		30	Do.
Egypt:				
Alexandria.....	May 21-Sept. 9.....	42	14	
Cairo.....	Apr. 30-July 15.....	18	8	
Germany.....				Total, May 16-Sept. 4, 1915: 40 cases.
Berlin.....	Aug. 22-28.....	1		
Hamburg.....	June 6-12.....	1		
Government districts—				
Allenstein.....	June 13-19.....	1		
Arnsberg.....	.....do.....	1		
Breslau.....	June 20-July 3.....	1		
Danzig.....	June 13-July 31.....	3		
Gumbinnen.....	May 23-29.....	2		
Marienwerder.....	May 23-July 31.....	3		
Merseburg.....	June 20-July 3.....	1		
Oppeln.....	May 16-Sept. 4.....	9		
Posen.....	May 30-June 5.....	3		
Potsdam.....	June 13-Aug. 14.....	4		
Wiesbaden.....	Aug. 29-Sept. 4.....	1		
Great Britain:				
Bristol.....	Mar. 21-May 22.....	29	7	1 vessel from Bombay. Maximum incidence, Apr. 4-17: Cases, 22; deaths, 2.
London.....	May 30-June 12.....	3		
Greece:				
Saloniki.....	May 23-29.....		1	
India:				
Bassein.....	May 2-8.....		1	
Bombay.....	May 2-Aug. 28.....	242	131	
Calcutta.....	Apr. 25-Aug. 14.....		257	
Karachi.....	May 2-July 31.....	25	4	
Madras.....	May 2-Aug. 28.....	39	22	
Moulmein.....	May 23-29.....		1	
Pegu.....	Apr. 18-June 12.....	1	1	
Rangoon.....	Apr. 18-Aug. 21.....	133	57	May 1-31, 1915: Cases, 37; deaths, 14.
Indo-China:				
Provinces—				
Anam.....	Jan. 1-31.....			Present.
Cambodia.....	Jan. 1-Feb. 28.....	32	5	
Cochin China.....	Jan. 1-31.....	12		
Laos.....	Feb. 1-28.....	6		
Tonkin.....	Jan. 1-Feb. 28.....	66	12	
Saigon.....	May 23-July 10.....	2	2	
Italy:				
Milan.....	May 1-31.....	1		
Turin.....	Aug. 16-29.....	3		
Japan:				
Taiwan, island.....	May 23-29.....	1		

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.**Reports Received from June 26 to Oct. 15, 1915—Continued.****SMALLPOX—Continued.**

Place.	Date.	Cases.	Deaths.	Remarks.
Mexico:				
Acapulco.....	July 14-Sept. 5.....		3	
Aguascalientes.....	June 7-Sept. 19.....		20	
Columbia.....	Sept. 15.....	2		
Frontera.....	May 23-Aug. 14.....	129	51	
Mazatlan.....	June 23-July 13.....		3	
Monterey.....	June 14-Sept. 12.....	10		
Nuevo Laredo.....	Sept. 11.....	2		In persons from San Luis Potosi.
Progreso.....	June 6-July 24.....	7	1	
Salina Cruz.....	June 1-30.....	4	1	Soldier from San Geronimo.
Tampico.....	Aug. 11-29.....		1	
Vera Cruz.....	June 7-Sept. 18.....	116	60	
Portugal:				
Lisbon.....	May 23-Aug. 28.....	27		
Russia:				
Moscow.....	May 2-15.....	19	5	
Petrograd.....	May 8-Aug. 14.....	359	146	
Riga.....	May 9-Sept. 4.....	137	10	Mar. 1-31, 1915: Cases, 89; deaths, 22.
Vladivostok.....	May 29-June 4.....	1		Sept. 27-Oct. 31, 1914: Cases, 51; deaths, 16. Nov. 1-28, 1914: Cases, 70; deaths, 23.
Serbia.....	Apr. 21-May 3.....	356		
Spain:				
Madrid.....	June 1-Aug. 31.....		13	
Seville.....	May 1-June 30.....		7	
Valencia.....	May 30-Sept. 18.....	106	12	
Straits Settlements:				
Penang.....	Apr. 25-May 15.....	6	2	
Singapore.....	May 23-29.....	1		
Switzerland:				
Basel.....	May 16-Aug. 21.....	22		
Turkey in Asia:				
Bagdad.....	May 2-8.....			Present.
Beirut.....	May 16-Aug. 14.....	84	35	
Haifa.....	May 3-July 25.....	9	1	
Jaffa.....	May 9-29.....	2		
Mersina.....	May 30-June 5.....	1		
Tripoli.....	May 2-8.....			Do.
Union of South Africa:				
Cape Town.....	June 24-July 30.....	3		

SANITARY LEGISLATION.

COURT DECISIONS.

NEW YORK SUPREME COURT, SPECIAL TERM, NEW YORK COUNTY.

Marriage—Tuberculosis—Annulment of Marriage Because of Fraud in Concealing Disease.

SOBOL v. SOBOL, 150 N. Y. Sup., 248. (Dec. 7, 1914.)

It is proper for a court, in view of the widespread prevalence of tuberculosis and the disastrous consequences to those who suffer from it, to take judicial notice of its infectious character and the fact that close association with a person afflicted with that disease, unless attended with great care, occasions danger of infection to those coming into close contact with such person.

The fraudulent concealment of material facts concerning the condition of his health by one party to a marriage contract justifies the legal annulment of the marriage at the instance of the other party.

The defendant knew before the marriage that he was suffering from tuberculosis. He concealed this fact from the plaintiff, and represented that certain symptoms of the disease were the result of a cold. Upon discovery of the facts the plaintiff ceased to cohabit with him. No offspring resulted from the marriage. The court annulled the marriage on the ground of fraudulent concealment and misrepresentation.

BLANCHARD, J.: It is established that the defendant in this action was treated for tuberculosis prior to the time of his marriage and knew that he was suffering from the disease. Subsequently he was married to the plaintiff, and she has testified that the defendant represented to her prior to the marriage that certain symptoms which he displayed were the manifestations of a cold. It furthermore appears that within a few days subsequent to the marriage the defendant's condition was such as to require the attention of a physician, who then diagnosed his case as tuberculosis, and that thereafter the plaintiff no longer continued to cohabit with him. There are no children of the marriage. The defendant since his marriage has continued to show symptoms of tubercular trouble, and upon the advice of his physician has gone West for the purpose, if possible, of becoming cured. The physician further testifies that in his opinion the defendant is incurable. This action is now commenced for the annulment of the marriage, upon the ground that the defendant, knowing himself to be afflicted with tuberculosis, was guilty of fraud in concealing from and misrepresenting to the plaintiff the actual facts of his condition. These facts, the plaintiff asserts, would have precluded her from entering into the marriage had she known of them. No defense was offered, and the question to be determined, therefore, is whether these facts are sufficient to move the court to grant a decree. No case has been brought to my attention in this State, nor have I been able to find any, which directly determines the question.

As a general proposition, the rule may be stated to be that any misrepresentation of a material fact incidental to the contract of marriage is sufficient to avoid it. It is not, however, to be inferred from this language of the appellate courts that every misrepresentation of fact, even though made material by either of the parties, is of sufficient weight. It is for the court, in the exercise of sound discretion and with regard to public policy because of the peculiar nature of the contract, to determine whether or

not the misrepresentations of fact and the probable consequences to be expected because of these misrepresentations are of sufficient importance to cause the court to exercise its power to dissolve the contract in the interest of the parties and that of the public at large. In numerous cases the courts of this State and of other States have held that the fraudulent concealment of a venereal disease is sufficient ground for the annulment of the contract of marriage upon the ground of fraud. The view which the courts have adopted is that the presence of such a disease is not only liable to cause contagion from the marital relation, but is also fraught with danger to the offspring of such union, and, as the court says in *Svenson v. Svenson*, 178 N. Y., 54, 70 N. E. 120:

The disease is one involving disgrace in its contraction and presence, contagion in marital association, and includes danger of transmission and heredity that even science can not fathom or certainly define.

In the case at bar the disease from which it is claimed the defendant suffered is not a disease which so closely affects the marriage relation as a venereal disease. If, however, it is such a disease that, through the close tie of the marital relation, grave and disastrous results from infection may be caused to the other party, and possible evil consequences to the offspring of such a union, I think it of sufficiently grave character to bring it within the purview of the rule applicable to venereal disease.

No evidence as to the character and probable consequences of infection, either to a party to such marriage or to its offspring, is before the court; nevertheless I feel that it is proper for the court, in view of the widespread prevalence of tuberculosis and the disastrous consequences to those who suffer from it, to take judicial notice of its characteristics for the purpose of this discussion. There can be no doubt that tuberculosis is a disease of an infectious character, and that close association with a person afflicted with that disease, unless attended by great care, occasions danger of infection to those coming into close contact with such person. While it may be that such care is possible in the marital relation, nevertheless I do not think it should be the policy of the courts to sustain the obligations of a union which would entail the burden and danger that would follow under the circumstances, and where there can be no sure method of preventing an infection. Furthermore, there is little doubt that the offspring of a person afflicted with tuberculosis, while not born infected, are born with a strong predisposition to becoming infected, and succumb with greater readiness to its ravages. Although it is true that tuberculosis is not a disease which involves "disgrace in its contraction and presence," certainly it is one that "includes danger of transmission and heredity that even science can not fathom or certainly define." (*Svenson v. Svenson*, supra.) As was said in *Di Lorenzo v. Di Lorenzo*, 174 N. Y., 467, 67 N. E. 63, 63 L. R. A. 92, 95 Am. St. Rep., 609, wherein Judge Gray laid down the general rule in respect of the annulment of marriage on the ground of fraud:

It is obvious that no one would obligate himself by a contract if he knew that a material representation entering into the reason for his consent was untrue.

It would seem that in the case at bar, had the plaintiff known the true condition of the defendant's health, which he misrepresented to her, she would not have entered into the contract, involving as it did the danger of herself, as well as any offspring that might be born, becoming infected with the disease. For the foregoing reasons, it would seem that there was a misrepresentation of a fact of sufficient weight for the courts, from the standpoint of public policy, not only because of its possible effect upon one of the contracting parties, but also upon their posterity, to declare the contract void.

Facts of a somewhat similar nature to those at bar are to be found in the case of *Gumbiner v. Gumbiner* (72 Misc. Rep., 211; 131 N. Y. Supp., 85); but I think, from an examination of the decision in that case, that it affords no precedent here. Some stress seems to be laid in the decisions in respect of venereal disease upon the fact that the marriage in the majority of those cases was not consummated by cohabitation,

and thus the mere contract itself did not result in a status. As was said in *Svenson v. Svenson*, *supra*:

If, before children are begotten, before debts are created, real estate involved, and the community have long recognized the relation, the injured party seeks relief from fraud, error, or duress, it seems clear that no consideration of public policy will prevent a court from annulling a marriage, where the relation has not fully ripened into the complications of a public status.

In the case at bar cohabitation, if it resulted at all, was certainly of short duration and terminated immediately upon the discovery of the true facts in the case. For this reason it would seem to the court that no status, in the sense of a subsisting marriage, was established, but that, if anything, the relationship was little more than a simple contract, and for this reason voidable for material misrepresentations. It would seem to me a gross perversion of justice to refuse to release a party from a matrimonial contract whereby no important status affecting the relationship of the parties to the general public or to each other has been established, in the face of a situation which, as between the parties and the probable normal result of their continuing union, is attended with an element of such grave potential results.

ARKANSAS SUPREME COURT.

Sewage Disposal Plant—Operation Constituting a Nuisance—Injunction Against City Officers.

JONES et al. v. SEWER IMPROVEMENT DISTRICT NO. 3 OF THE CITY OF ROGERS et al.; 177 S. W. Rep., 888. (June 7, 1915.)

Neither municipal corporations nor local improvement districts in Arkansas can be sued at law for tort because they are agents of the State for governmental purposes; but in a proper case they may be enjoined from creating a nuisance or be required to abate one already created by them.

Under the laws of Arkansas it is the duty of the commissioners of a sewer district to so construct a sewage-disposal plant that it will not become a nuisance to any neighborhood or to any particular inhabitant thereof, and city officers will be enjoined from constructing or maintaining a sewage-disposal plant in such manner as to create a nuisance.

Plaintiffs' farms were near the city of Rogers, and the outlet of a septic tank for sewage disposal flowed through them. Plaintiffs had been paid for the damage to their land caused by the location and proper operation of the sewage-disposal plant, but additional damage was caused by improper construction or operation of the plant, which allowed fecal matter, other solid substances, and impure water to flow into the outlet. The court held that the plaintiffs were entitled to an injunction against the authorities in charge of the sewage-disposal plant to compel them to operate it in such manner as not to create a nuisance.

HART, J.: R. C. Jones and Martin Wheatley instituted separate actions in the chancery court against the city of Rogers, sewer improvement district No. 3 of the city of Rogers, and the individuals comprising the board of commissioners of said improvement district. The causes were consolidated for the purpose of trial.

Among other allegations contained in the complaint are the following: That the plaintiffs are farmers and reside on their farms near the city of Rogers, in Benton County, Ark. That a natural drain or water course runs through their land in which water flows the year round. That a sewer improvement district was organized in the city of Rogers and sewers constructed under it. That plaintiffs' farms were situated within a mile of the city limits, and that they resided thereon. And that a septic tank was constructed near their farms, and that the effluent from it flowed through the natural drain or water course on their land.

The allegations of the complaint state that the septic tank was maintained in such a manner as to constitute a nuisance, and the prayer of the plaintiffs is that the nuisance be abated and the defendants restrained from maintaining a septic tank in such a way as to constitute a nuisance.

The cause of action against the city of Rogers was dismissed by plaintiffs, and, upon a hearing of the cause, the chancellor dismissed the complaint for want of equity. The plaintiffs have appealed.

In the absence of a statute making them liable, we have held that an action will not lie against a municipal corporation or local improvement district or the officers thereof because such corporation and their officers are merely agents of the State for governmental purposes. For cases in point with reference to municipal corporations and their officers, see the following: *Browne v. Bentonville* (94 Ark., 80, 126 S. W., 93); *Franks v. Holly Grove* (93 Ark., 250, 124 S. W., 514, 137, Am. St. Rep., 86); *Gregg v. Hatcher* (94 Ark., 54, 125 S. W., 1007, 27 L. R. A. (N. S.), 138, 21, Ann. Cas., 982); *Gray v. Batesville* (74 Ark., 516, 86 S. W., 295); *Fort Smith v. Dodson* (51 Ark., 447, 11 S. W., 687, 4 L. R. A., 252, 14 Am. St. Rep., 62); *Fort Smith v. York* (52 Ark., 84, 12 S. W., 157); *Arkadelphia v. Windham* (49 Ark., 139, 4 S. W., 450, 4 Am. St. Rep., 32); *Trammell v. Russellville* (34 Ark., 105, 36 Am. Rep., 1). For cases in point as to improvement districts and their officers, see *Board of Improvement of Sewer District No. 2 v. Moreland* (94 Ark., 380, 127 S. W., 469, 21 Ann. Cas., 957); *Wood v. Drainage District No. 2 of Conway County* (110 Ark., 416, 161 S. W., 1057).

Article 2, section 22, of our constitution, provides that private property shall not be taken, appropriated, or damaged for public use without just compensation.

Under our statute sewer improvement districts may be formed in cities and outlets therefor secured outside the corporate limits of the city. See *Kraft v. Smothers* (103 Ark., 270; 146 S. W., 505).

As the constitution forbids the taking of private property for public use without just compensation, the grant of the legislature to cities and towns to form sewer-improvement districts and to obtain an outlet therefor outside the corporate limits of such municipality imposes upon such corporations the correlative duty to make just compensation for property so taken. In the exercise of this power we have held that the turning of sewage by a municipal corporation into a stream to the injury of lower riparian owners is within the constitutional provision requiring compensation for damaging property for public use, and that in such cases the damages should be assessed on the theory of a permanent taking under the right of eminent domain. *McLaughlin v. City of Hope* (107 Ark., 442; 155 S. W., 910; 47 L. R. A. (N. S.), 137). The same principle was recognized in *City of El Dorado et al. v. Scruggs* (168 S. W., 846), where the sewer improvement district commissioners constructed a sewer and appropriated the property of a landowner outside of the limits of the corporation for the purpose of discharging the effluent from the septic tank of the sewer district.

In the case at bar the plaintiffs instituted actions in the circuit court for the taking and damaging of their property by the sewer improvement district and recovered judgments therefor. As we have already seen, the flow from the septic tank emptied into a natural drain or watercourse which flowed through plaintiffs' land and which contained water throughout the year.

The measure of damages to a riparian owner from the use of a stream as an outlet for sewage is the difference in value of the land before and after the stream was so used. This rule was laid down in the case of *McLaughlin v. City of Hope*, supra, and *City of El Dorado v. Scruggs*, supra.

In the circuit court the plaintiffs were allowed to recover damages according to this rule; that is to say, they were entitled to and allowed to recover damages for the land taken and damaged by the construction of the sewer. The damages allowed in such cases are those which result from a proper construction of a sewer. According to the allegations of the complaint, after the sewer was constructed it was maintained in such a way as to constitute a nuisance. The right to construct sewers and drains implies no right to create a nuisance, public or private. It is the duty of the commissioners of the sewer district to construct the sewer so that it will not become a nuisance to any neighborhood or to any particular inhabitant thereof, and it is the duty of the city, after the sewer has been turned over to it, to avoid the same result

by properly maintaining and repairing the sewer after it is constructed. In *Joyce on Nuisances* (par., 284, p. 373), is said:

Where the municipal, quasi municipal, and public bodies generally proceed to exercise or do exercise their powers in constructing and maintaining great public works of a sanitary nature, such as a sewerage system, and the question of the extent of or limitations upon their powers has come before the courts, these powers, and the rights of the public and of private individuals in connection therewith, have occasioned much discussion. But, notwithstanding certain decisions not in harmony herewith, it may be stated that even though a municipality or other body has power to construct and maintain a system of sewers, and although the work is one of great public benefit and necessity, nevertheless such public body is not justified in exercising its powers in such a manner as to create, by a disposal of its sewage, a private nuisance, without making compensation for the injury inflicted, or being responsible in damages therefor, or liable to equitable restraint in a proper case, nor can these public bodies exercise their powers in such a manner as to create a public nuisance, for the grant presumes a lawful exercise of the powers conferred, and the authority to create a nuisance will not be inferred.

See also 2 *Dillon, Municipal Corporations* (4th ed., par. 1047).

The right conferred upon the sewer commissioners to construct the sewer system and to obtain an outlet therefor outside the city limits carried with it the power to condemn lands necessary for the outlet and for the construction of the septic tank and filter beds. In the suit brought in the circuit court the plaintiffs recovered damages for all injuries to their property as were the natural and necessary result of the construction of the sewer system. While it was lawful to construct the sewer system, and the plaintiffs have received compensation for the injury to their property incident to the construction thereof, it by no means follows that either the city authorities or the sewer commissioners have the right to act in excess of the powers conferred upon them by law. In short, it was the duty of the sewer commissioners to use due care in the construction of the sewer system, and the same duty devolved upon the city authorities in the operation and maintenance thereof.

The record shows that it was practicable at a reasonable cost, as part of the construction of the sewer system, to chemically treat the sewage in the septic tank so that the solid matter was reduced to a liquid form and the noxious and harmful odors would to a great extent be eliminated. It was the duty of the sewer commissioners to adopt such a method in the construction of the sewer system, and it was likewise the duty of the city authorities to use such a method in the maintenance of the system.

This brings us to the question of whether the sewer system was operated and maintained in such a manner as to constitute a nuisance.

The record in this case is long. Numerous witnesses were called to testify, and their evidence to a considerable extent is conflicting.

The evidence on the part of the defendants tends to show that the sewer and the septic tank were constructed in a proper manner and that there was no serious pollution of the air and no deposit of fecal matter or other solid substance on the lands of the plaintiffs or on other lands adjacent to the septic tank.

On the other hand, the testimony on the part of the plaintiffs establishes the fact that when septic tanks, filtering beds, and other devices for purifying sewage are constructed, operated, and maintained in a proper manner the solid matter which goes into the septic tank is reduced to a liquid form, and that the flow from the septic tank is practically odorless, and that no noxious odors of any serious consequence emanate from the septic tank; that the contents of the septic tank are chemically treated in such a way that the liquid which flows therefrom contains but little impure matter.

Several witnesses, including physicians and other experts, testified that they had been on the land adjacent to the septic tank and on the land of the plaintiffs, and that fecal matter and other solid substances were allowed to flow from the tank along with impure water, and that they were precipitated upon the lands of the plaintiffs. They testified as to the volume of such solid substances as were allowed to flow from the tank and to the intensity of the odors therefrom.

No useful purpose could be served by stating this testimony in detail. It is sufficient to say in a general way that the testimony showed that the odor came from the decaying and putrefying organic matter contained in the septic tank, and that these offensive odors were an indication of weak septic action and lack of purification. Some of the water which flowed from the tank was chemically treated and found to contain colon bacilli and to produce 75 per cent gas. The evidence of the experts shows that this could have been avoided by a proper operation and maintenance of the sewer system.

After a careful consideration of the whole record, we are of the opinion that the clear preponderance of the evidence shows that the sewer system was operated and maintained in such a way as to constitute a nuisance. Our statute authorizing cities and towns to form improvement districts for the construction of a system of sewers did not intend to authorize the creation of a nuisance.

The defendants pleaded the statute of limitations. The sewer system was created and put in operation in April, 1910, and the sewage has been continuously discharged on the lands of the plaintiffs for a period of three years thereafter. We do not agree with the contention of the defendants, however, that the action is barred by the statute of limitations. The mere fact that sewers are of permanent construction does not render the nuisance, if any, permanent also. As we have already seen, the nuisance in the present case arose from faulty operation and maintenance of the sewer. It was therefore of a continuing or recurring nature, and the action of plaintiffs was not barred.

The action of the defendants in negligently maintaining the sewer approximately and efficiently contributed to the nuisance. Thus the fundamental basis of all equity jurisdiction in tort manifests itself, and the right of the plaintiffs to equitable relief is clear and indisputable. *Pomeroy's Equity Jurisprudence* (vol. 5, sec. 514). See also *Durfey v. Thalheimer* (85 Ark., 544; 109 S. W., 519); *Joyce on Nuisances* (sec. 284, p. 373).

As we have already seen, this court has uniformly held that neither municipal corporations nor local improvement districts nor their officers may be sued at law for tort, but it does not follow that in a proper case they may not be enjoined from creating a nuisance or be required to abate one already created by them. Indeed, this affords ground for equitable relief in actions like this. The object of the organization of a sewer district and the authority of its board of commissioners is limited to the construction of the sewer and paying for same. When completed, they become subject to the control of the city. *Pine Bluff Water Co. v. Sewer District* (56 Ark., 205; 19 S. W., 576); *City of El Dorado v. Scruggs*, *supra*.

There is some conflict in the testimony as to whether or not the construction of the sewer has been completed. The record shows that the sewer has been in operation several years and that owing to faulty construction its operation has created a nuisance. This defect the commissioners have tried to remedy, but they have not yet succeeded. It does not definitely appear from the record whether or not the sewer has been turned over to the city authorities. It does show that the plaintiffs dismissed their cause of action against the city authorities. This they should not have done and, inasmuch as the decree must be reversed for the causes above stated, they will be permitted to amend their complaint, if they are advised so to do, to again make the city a party to the action; and the chancellor will be directed to enjoin the city authorities or sewer commissioners, whichever now have control of the operation and maintenance of the sewer system, from operating and maintaining it so as to create or continue a nuisance on the lands of the plaintiffs.

MUNICIPAL ORDINANCES, RULES, AND REGULATIONS PERTAINING TO PUBLIC HEALTH.

CHAMBERSBURG, PA.

Board of Health—Organization and Duties. Secretary—Duties of. (Ord. July 26, 1915.)

SECTION 1. That hereafter there shall be maintained in the said borough a board of health in conformity with the several acts of assembly in such case made and provided. The president of the town council shall appoint its members, as provided by law, and fill vacancies which may occur from any cause.

SEC. 2. The members of the board of health shall be sworn as required by law and shall meet regularly at least once a month and at such other times as may be necessary.

SEC. 3. The board of health shall, at the beginning of each fiscal year, furnish the town council with an estimate of the necessary expenses for the ensuing year, whereupon the council shall appropriate a sufficient amount for the use of the board of health and shall make such additional appropriations during each year as the necessities of the case may require.

SEC. 4. The board of health shall provide all stationery for the secretary and other officers of the board, placards, notices, circulars, utensils, and ingredients for disinfection, and any other supplies which may be necessary for the proper administration of the health laws and regulations.

SEC. 5. The secretary of the board of health shall keep the minutes of the proceedings, accounts of all expenditures, and draw orders upon the borough treasurer for the payment of moneys in such form as the regulations of the borough shall require. All such orders shall be countersigned by the president of the board of health. He shall also perform such other duties as the board shall direct. The secretary shall report communicable diseases to the State department of health and perform such other duties as the laws governing the health department shall require. He shall give bond in the sum of \$50, conditioned for the faithful performance of his duties as required by law, with sureties to be approved by the town council.

Health Officer—Duties of. (Ord. July 26, 1915.)

SEC. 6. It shall be the duty of the health officer to act as the executive officer of the board of health. He shall attend all stated and special meetings of the board and shall at all times be ready and available for the prompt performance of his official duties and such other duties as the board of health may from time to time direct. He shall give bond in the sum of \$50, conditioned for the faithful performance of his duties as required by law, with sureties to be approved by the town council.

Communicable Diseases—Notification of Cases—School Attendance. (Ord. July 26, 1915.)

SEC. 7. Every physician who shall treat or examine any person within the borough suffering from or afflicted with any disease which is by law or the regulations of the State department of health declared to be communicable, shall forthwith report each

and every such case to the board of health of the borough on cards furnished for such purpose, and for any failure so to do, such physician shall be liable to the penalty prescribed by law for such offense.

SEC. 8. Every physician who shall have in his charge within this borough any case of communicable disease, shall notify the board of health in writing of the recovery or death of the person afflicted, so that the premises may be disinfected, as required by law.

SEC. 9. No physician practicing within the limits of this borough shall conceal or in any way aid, abet, or encourage the concealment of any case of quarantinable disease or shall in any way hinder or interfere with the health authorities in the performance of their duties.

SEC. 10. It shall be the duty of the principal superintendent, teacher, or other person in charge of the public, private, parochial, Sunday, or other schools of this borough to refuse admission to such schools of any pupil or other person who may be suffering from or may have been exposed to any communicable or quarantinable disease, as required by law. Such persons so in charge of schools as aforesaid, who may have reason to suspect that any pupil or other person in attendance at such school may be suffering from a communicable disease for which school exclusion is required, shall forthwith report each and every such case to the board of health, and shall exclude such pupil or other person from the school, pending an examination and report from the health authorities.

Foodstuffs—Protection of—Sanitary Regulation of Stores and Wagons. (Ord. July 26, 1915.)

SEC. 11. No person, firm, or corporation who shall conduct any store, shop, stand, or delivery wagon within the limits of this borough, for the sale of meat, fish, butter, eggs, fruit, vegetables, bread, or any other article of food, which is subject to decay, mold, or decomposition, shall have or keep in or about such store, shop, stand, or wagon, any meat, fish, butter, eggs, fruit, vegetables, bread, or other articles of food which is decayed, decomposed, or spoiled, so as to render it unwholesome, offensive, or otherwise unfit for human consumption.

SEC. 12. All stores, shops, stands, and wagons from which articles of food are vended or sold, must at all times be kept clean and in a sanitary condition, free from offensive odors or any accumulation of decomposed animal or vegetable matter, and shall at all times be open to the inspection of the health officer of the borough, or other authorized agent of the board of health.

SEC. 13. No person, firm, or corporation selling meat, fish, fruit, or vegetables, shall expose them on sidewalks or on outside counters at stores, shops, or on stands, or in wagons, unless they shall be at least 2½ feet from the ground, pavement, or floor, and shall be thoroughly screened and protected from flies.

Milk and Cream—Production, Care, and Sale. (Ord. July 26, 1915.)

SEC. 14. Any person desiring to sell milk or cream in the borough of Chambersburg shall procure a license from the board of health, and annually thereafter make application to the board of health, in writing, for a license so to do. The application shall be in such form as the board of health shall prescribe, and the license shall be issued without charge. Each person to whom a license is granted shall display the number of the same on his wagon or other vehicle in a conspicuous place, the plate to be furnished by the board of health.

SEC. 15. All persons engaged in the sale or handling of milk within the borough shall comply with the following rules and regulations:

RULE 1. Cows from which milk is sold in the borough of Chambersburg shall be kept in light, dry, well-ventilated stables. The cows shall be kept clean, especially

as to their udders and flanks, and the udder shall be wiped dry and clean with a clean, damp cloth before milking, at which time the foremilk shall be discarded.

RULE 2. Milk or cream sold or exposed for sale shall be from cattle fed and watered under sanitary conditions, fed on good and wholesome food and supplied with pure water free from contamination by stable or household drainage.

RULE 3. All milk pails, cans, and other receptacles used for the production and transportation of milk or cream shall be of some nonabsorbent material and shall before each use be thoroughly washed with water and soap, or soda, and then scalded with boiling water or live steam, thoroughly aired and kept upside down in a cool place.

RULE 4. Any milk or cream sold in any store or other establishment shall be kept in covered cooler, box, or refrigerator, which shall be properly drained and cared for, and the vessel while therein shall be tightly covered or closed, and all vessels or implements used in connection with such sale shall be kept clean and sterile.

RULE 5. All cans, bottles, or vessels of any sort used in the sale, delivery, or distribution of milk or cream to the consumer must be clean and must be sterilized, boiled, baked, scalded, or steamed by the dealer before they are again used for the same purpose, and bottles must not be filled with milk or cream except at the dairy or milk depot from which distribution is made.

RULE 6. No metallic or permanent card tickets shall be used in connection with the sale or distribution of milk or cream in the borough of Chambersburg, but instead thereof a coupon ticket may be employed, and such ticket shall be cancelled and destroyed after being used once.

RULE 7. No milk shall be sold or handled by any person or persons in whose family or residence there is a case of any communicable or quarantinable disease, nor from any dairy or premises on which such diseases may exist, except by permission of and in the manner that shall be prescribed by the board of health, and only in accordance with the rules and regulations of the State department of health. It shall be the duty of every person having charge or control of any premises upon which cows are kept for the purpose of furnishing milk to persons residing within the borough of Chambersburg to notify the board of health of the existence of any such diseases upon the premises.

RULE 8. Under no circumstances shall a milk or cream dealer or any employee take from a house within which there is any communicable or quarantinable disease any money, tickets, cans, bottles, etc., nor shall he enter such a house for any purpose whatsoever without written permission from the board of health.

RULE 9. Whenever any communicable or quarantinable disease becomes epidemic in the borough of Chambersburg or vicinity and is so adjudged by the health authorities, the use of milk bottles and such other containers as may be left on consumers' premises by milk dealers shall be discontinued within the borough until such time as existing health conditions warrant the resumption of their use.

SEC. 16. In case any licensed dealer in milk violates any of the foregoing rules and regulations the board of health may revoke such dealer's license. Before so doing the health officer shall serve upon such dealer a notice setting forth briefly wherein the dealer has violated the foregoing rules and regulations and requiring the dealer to appear before the board of health at a date not less than three nor more than seven days after service of the said notice, at which time the board of health shall hear proofs of the alleged violation of the rules and regulations and shall also hear the dealer in his defense, if he shall appear, and in case four members of the board of health shall be satisfied by the evidence that the dealer has violated the regulations, the board may revoke his license to sell milk for such period as it may deem proper. Revocation of the dealer's license shall not relieve him from prosecution to recover the penalties hereinafter provided.

Slaughterhouses—Sanitary Regulation. (Ord. July 26, 1915.)

SEC. 17. No slaughterhouse shall be maintained within this borough which is so constructed, arranged, equipped, managed, or cared for as to injuriously affect the soundness, healthfulness, or wholesomeness, or in any way render unfit for human food the meats or meat food products therein prepared, stored, or sold, or that shall be in any wise contrary to law.

SEC. 18. Every slaughterhouse shall be furnished with a sufficient supply of running water. The floors shall be paved with asphalt, cement, or impervious matter in which no leaks shall be permitted to exist and which floors shall be washed at least once each week with hot water and shall be from time to time disinfected in such manner as the board of health may direct.

SEC. 19. No blood, manure, offal, or other refuse shall be allowed to accumulate in or around the slaughterhouse or in any place within the borough where the same might or does become offensive and a menace to health.

SEC. 20. All slaughterhouses shall be open to inspection at all times by the health officer or other sanitary agent of the board of health, and any orders or instructions issued by the board of health regarding the same must be promptly observed by the owner or other person in charge.

Offensive Trades—Regulation of. (Ord. July 26, 1915.)

SEC. 21. No person or company shall erect or maintain within the limits of this borough any manufactory or place of business dangerous to life or detrimental to health, or where unwholesome, offensive, or deleterious odors, gas, smoke, deposit or exhalations are generated, without an annual permit from the board of health, said permit to be procured of the secretary and signed by the health officer. All such establishments shall be kept clean and wholesome, so as not to be offensive or prejudicial to public health, nor shall any offensive or deleterious waste substance, refuse, or injurious matter be allowed to accumulate upon the premises, or to be thrown or allowed to run into any public waters, stream, watercourse, street, road, or public place, and every person or company conducting such manufactory or business shall use the best approved and all reasonable means to prevent the escape of smoke, gases, and odors, and to protect the health and safety of all operatives employed therein.

Domestic Animals—Disposal of Dead Bodies. (Ord. July 26, 1915.)

SEC. 22. The carcass of any animal which shall have died within the limits of the borough shall be removed within 24 hours and properly disposed of by the owner of the animal, if the owner be known, or by the owner of the property on which the dead animal is found, or in case the ownership is unknown and the carcass is found on a street, alley, or other public place, it shall be removed by the board of health at the expense of the borough. The disposal of all dead animals shall be under the direction of the board of health and in accordance with the laws of the Commonwealth.

Swine—Keeping of. (Ord. July 26, 1915.)

SEC. 23. From and after the 20th day of July, 1915, no person shall keep hogs or maintain and use a hog pen or sty for the purpose of keeping or feeding hogs, shoats, or swine within the limits of the borough, unless he shall first secure a permit from the board of health. Application for such permit shall be made to the health officer, in such form as may be prescribed by the board. It shall set forth the location of the pen, the maximum number of hogs to be kept, and shall be granted, provided the place where the hogs are to be kept is constructed so that it can be kept and maintained as required by this ordinance. The permits granted during the year 1915 to keep

hogs shall expire on April 1, 1916, and shall thereafter be renewed annually, unless the applicant shall have violated the provisions of this ordinance or such other health regulations as may from time to time be established.

SEC. 24. All hog pens or stys shall have floors of concrete or some other water-tight material, and shall be cleaned at least once a week, or oftener if the same shall become odorous or offensive, and shall at all times be open to inspection by the health officer or other agents of the board of health. Nothing herein contained shall permit the maintenance of a hog pen or sty if the same shall become a nuisance, in which case it shall be abated as provided by law.

SEC. 25. No permit shall be required for the keeping of hogs brought into the borough for the purpose of immediate sale or slaughter, but the places in which they are kept shall be kept and maintained as required by this ordinance.

Garbage and Manure—Care and Disposal. (Ord. July 26, 1915.)

SEC. 26. No manure pile shall be kept in the borough of Chambersburg for a longer period than one week, unless at the end of which time the place where it is maintained shall be properly cleaned. Manure may be kept for a longer time in a shed tightly covered and inclosed on all sides, or in a sunken pit likewise covered and inclosed. The health authorities, however, notwithstanding this privilege, may cause the removal of any manure if the same shall become a nuisance.

SEC. 27. Any person hauling manure through or upon the streets or highways of the borough shall load the same in such a manner that none shall drop upon the streets or highways.

SEC. 28. Garbage includes all kinds of organic kitchen refuse, and must either be burned on the premises where it originates in a stove, furnace, incinerator, or buried on said premises. It may be kept in tightly covered metallic cans, not too large for convenient handling, which said cans must be emptied and their contents removed and disposed of at least twice a week during the months of May, June, July, August, September, and October, and at least once a week during the remaining months of the year. Nothing herein contained shall prevent the board of health from causing the removal of garbage which becomes a nuisance.

SEC. 29. Any person hauling garbage shall so handle it as to prevent its dropping upon the streets or highways of the borough, and shall keep any vehicle used for that purpose clean and covered, so that the same may not emit foul odors.

Penalty. (Ord. July 26, 1915.)

SEC. 30. Any person violating any of the provisions of this ordinance for which penalties are provided by the laws of the State of Pennsylvania shall be prosecuted under and shall suffer the penalty provided by such law.

SEC. 31. Any person violating any provisions of this ordinance for which a penalty is not provided by the law of the State shall, upon conviction of such violation before any magistrate or justice of the peace, pay a fine of not less than \$1 nor more than \$50. In case the person so convicted and fined as aforesaid shall fail to pay the penalty imposed, he shall suffer imprisonment in the county jail for a period of one day for each dollar of penalty imposed.

CHICAGO HEIGHTS, ILL.

Milk and Milk Products—Production, Care, and Sale. (Ord. Aug. 20, 1915.)

SECTION 1. That article 5 of the revised municipal code of Chicago Heights of the year 1908 be, and the same is hereby, repealed, and that the following ordinance be substituted therefor:

SEC. 2. No person or corporation, or driver of any milk wagon, nor any servant or agent of any vender of milk, shall sell or offer for sale, expose for sale, dispose of,

exchange, or deliver, or with the intent so to do as aforesaid, have in his or their possession, care, custody, or control, milk or cream for human food, without having been first licensed so to do. Every person or corporation selling or disposing of milk or cream shall, annually on the 31st day of December, pay license fees as follows: Every milk or cream vender selling, offering for sale, exposing for sale, exchange, or delivery, or disposing of milk and cream, or either of them, in and from any store, stand, booth, market place, milk depot, warehouse, dairy, cow stable, or any building or establishment of any kind, or in or from any wagon, carriage, or other vehicle, shall pay the sum of \$10. When more than one wagon, carriage, or vehicle is used from which milk or cream is sold or offered for sale, there shall be paid at the same time and in like manner as hereinbefore provided, for each such additional wagon, carriage, or other vehicle, the sum of \$10.

All licenses granted pursuant to this article may at any time be revoked by the mayor for violations of the provisions hereof, or for any other good and sufficient cause.

If at the time of application for a license under the provisions of this article less than six months of the current license year shall have expired, the applicant shall be required to pay for such license the full annual license fee of \$10, and if at the time such application is made six months or more than six months of the current license year shall have elapsed, the applicant shall be required to pay \$5 for such license; and no license shall be issued under the provisions of this article for any period or part of any license year for a less sum than \$5.

Every person or corporation violating this section or any of its provisions shall be fined not less than \$5 nor more than \$200 for each offense.

Sec. 2a. Any person or corporation desiring to be licensed as a milk vender in accordance with and pursuant to the provisions of this article shall make application in writing therefor to the commissioner of health.

Such application shall be made upon a printed form to be supplied by the department of health, and such applicant, if an individual, shall state therein his full name and residence, and, if a corporation, shall state the full name and residence of each of its officers. Such application shall also state the location of the place at which it is desired or intended to carry on such business; it shall also contain a description of each and every wagon or other vehicle to be used by the applicant in and about his business; also the number of cows, if any, owned or controlled by the applicant. The commissioner of health, upon receipt of such application, shall investigate or cause to be investigated the place of business described in such application and the wagons or other vehicles intended to be used by such applicant. If such place of business and such wagons or other vehicles are found by said commissioner to be in a sanitary condition and fit for the uses and purposes to which they are intended to be put, he shall transmit such application to the mayor with his approval thereon, and the mayor shall thereupon issue or cause to be issued to such applicant, upon the payment by him to the city clerk of the license fee as herein provided, a license attested by the city clerk, authorizing such applicant to carry on, engage in, and conduct the business of vender of milk in the city and at the place designated in such application, and to employ in and about such business the number of wagons or other vehicles designated and described in such application, for and during the period for which such license is issued.

No license issued hereunder shall entitle or authorize the licensee named therein to carry on, engage in, or conduct the business of vender of milk in any place or places other than that described and set out in such license, and a separate license fee shall be paid for each and every place at which such business is carried on, engaged in, or conducted: *Provided, however,* If any licensee shall desire to carry on, engage, in or conduct the business of vender of milk at more than one place of business, and employ the same wagons or other vehicles at each place of business, he shall not be required to pay more than one license fee for each such wagon or other vehicle.

If any person or corporation licensed under the provisions of this article shall change the location of his or its place of business, notice of such change shall be given forthwith to the commissioner of health, and no business shall be conducted or carried on under such license at such new location until such notice shall have been given as herein provided.

SEC. 3. Each vendor of milk shall, before engaging in the sale of milk or cream, cause his name and place of business to be placed, and to remain in letters not less than 6 inches in height, on each outer side of all wagons or other vehicles used by such vender in the conveyance or sale of milk or cream.

Any person or corporation in possession, charge, or control, either as driver or operator, of any wagon or other vehicle used in and about the business of vending milk, who shall drive or operate or cause to be driven or operated any such wagon or other vehicle in violation of any of the provisions of this section, shall be fined not less than \$5 nor more than \$100 for each offense; and a separate and distinct offense shall be deemed to have been committed for each and every day on which any such person or corporation shall drive or operate or cause to be driven or operated any such vehicle in violation of any of the provisions of this section.

SEC. 4. No person or corporation shall sell, offer for sale, or keep for sale, or convey or cause to be conveyed, on or in any wagon or other vehicle, or to be delivered therefrom, any milk or cream unless such wagon or other vehicle shall have securely fastened thereon, on the outside of each side of the box of such vehicle, a metal plate 8 inches long and 4 inches wide, on which shall be stamped a number corresponding to the license number of the milk vender by whom such vehicle is used, and also the words "Chicago Heights" and "milk," together with the year for which the milk vender using such vehicle is licensed. Such metal plate shall be obtained from the city clerk and shall be of a different color and design for each license year. Such plate shall be kept securely fastened on the outside of each side of the box of the vehicle on which it is placed during the license year for which it is issued, unless such vehicle be no longer used in and about the vending of milk.

At the expiration of the license year for which such plates were issued, or at any time before such expiration when any such vehicle shall cease to be used by any licensed milk vender in and about his business, the plates shall be forthwith removed from such vehicle and destroyed; and no person or corporation shall use or cause to be used any wagon or other vehicle in and about the business of vending milk unless such wagon or other vehicle has the plates herein required attached thereto in accordance with the provisions of this article, or with plates attached thereto for any year other than the year for which such plates were issued.

Any person or corporation violating any of the provisions of this section, or any person in possession, charge, or control of any wagon or other vehicle used in and about the business of vending milk, which shall be used or operated in violation of any of the provisions of this section, shall be fined not less than \$5 nor more than \$200 for each offense; and the operation or use of any such vehicle in violation of any of the provisions of this section shall constitute a separate and distinct offense for each and every day on which any such vehicle is so operated or used.

SEC. 5. No person or corporation shall deliver or bring into the city, for sale, any milk, cream, or condensed milk, or any or either of them, unless such milk, cream, or condensed milk is contained in a can or receptacle sealed with a metal seal by the shipper thereof, and unless such can or receptacle shall have such seal intact at the time it is brought into the city.

No person or corporation shall sell, offer, or expose for sale, or dispose of, or deliver to any person, any milk, cream, or condensed milk, or any or either of them, or have any milk, cream, or condensed milk, or any or either of them, in his or its possession, with intent to sell, offer, or expose the same for sale, or to deliver the same to any person which such person or corporation knows or has reason to believe was received in or

brought into the city in a can or other receptacle which was not sealed or which did not have its seal intact in accordance with the provisions of this section.

Any person or corporation who shall violate any of the provisions of this section shall be fined not less than \$10 nor more than \$200 for each offense.

SEC. 6. It shall be unlawful for any person, firm, or corporation to sell or offer for sale within the city of Chicago Heights any milk or cream in any bottle or glass jar unless such bottle or glass jar shall have indelibly indicated upon the cover or cap thereof, in a legible and conspicuous manner, the name of the person, firm, or corporation bottling said milk or cream in such bottle or glass jar; and it shall be unlawful for any person, firm, or corporation to sell or offer for sale any milk or cream within the city of Chicago Heights in any such bottle or glass jar which has blown into it, or otherwise indicated thereon, the name of any person, firm, or corporation other than or different from that which is indicated on such cover or cap.

Any person, firm, or corporation violating any of the provisions of this section shall be fined not less than \$5 nor more than \$100 for each offense.

SEC. 7. No person, firm, or corporation shall sell, or offer for sale, expose for sale, or keep with the intention of selling, any milk or cream in stores or in other places where other merchandise than milk or cream is sold unless the milk or cream is kept, offered for sale, exposed for sale, or sold in tightly closed and capped bottles or receptacles of a similar character, such as shall be approved by the commissioner of health of the city of Chicago Heights.

Any person, firm, or corporation who shall violate any of the provisions of this section shall be fined not less than \$5 nor more than \$100 for each offense.

SEC. 8. Mixtures of any two or more of the following articles of human food: Whole milk, skimmed milk, cream, condensed milk, and buttermilk, by any person or corporation licensed under this article, is hereby prohibited, and each can or vessel containing any one of the above-named articles shall have painted on two sides thereof, in plain black letters not less than 3 inches in height and no less than 6 inches from the top of the can or receptacle containing such article, the name of the article therein contained: *Provided, however,* That that part of this section which applies to having the name of the article painted on the vessel containing the same shall not apply to such articles sold in bottles. In such case the name of any of such articles, when sold in bottles, shall be printed, stamped, or painted clearly and legibly on the cap closing such bottles.

Any person or corporation licensed under this article who mixes any of the articles of human food herein named, and any person or corporation licensed under this article who sells or offers for sale any of the articles of human food herein named in any can or other receptacle which has not printed, stamped, or painted thereon, as provided herein, the name of the article contained in such can or other receptacle shall be fined not less than \$5 nor more than \$200 for each offense.

SEC. 9. Every person or corporation licensed under the provisions of this article, or who is engaged in or carrying on the business of vending milk and cream, or either of them, or who uses milk, cream, or either of them, in the manufacture of bread, cake, butter, oleomargarine, cheese, ice cream, or any other food product, shall keep all cans and other receptacles used in and about the handling of milk and cream, or either of them, and all refrigerators or compartments and stores or other places where milk and cream, or either of them, is kept, stored, or handled, in a scrupulously neat and clean condition and free from the presence or vicinity of any article or thing likely to contaminate or injuriously affect the quality or sweetness of such milk or cream, and shall also cause all cans and other receptacles in which milk or cream is kept to be sterilized with boiling water or live steam each time they are used, as soon as they are empty and before being used again, and shall cause all pouring cans, dip-pers, or other vessels used in and about the peddling or vending of milk and cream to be scalded or sterilized daily, and shall cause all bottles or jars in which milk or

cream is sold, offered for sale, or delivered to be washed clean and thoroughly sterilized each time they are used, as soon as they are empty and before being used again. Such person or corporation shall not use any can, bottle, or other receptacle in which milk or cream, or either of them, has been shipped or conveyed to such person or corporation for the storage of such milk and cream, or either of them, or of any other article or thing, but shall cause such cans, bottles, or other receptacles to be emptied and thoroughly cleaned and dried and returned to the shipper or to the person delivering the same, within 24 hours after such person or corporation shall have received the same.

Any person or corporation violating any of the provisions of this section shall be fined not less than \$5 nor more than \$200 for each offense.

SEC. 10. Every person or corporation owning or keeping a dairy in the city shall maintain the premises thereof free from any accumulation of refuse matter or offal. Any person or corporation failing to comply with this section shall be fined not less than \$5 nor more than \$200 for each offense; and if any dairy within the city shall be found to be in an insanitary condition by reason of the violation of any ordinance of the city or the refusal or neglect to comply with the rules and regulations of the department of health, or if, in the opinion of the commissioner of health, there is danger of the spread of a contagious or infectious disease through such dairy or the products thereof, or that the public health would be endangered by a supply of milk and cream therefrom, then in the discretion of said commissioner he may order such dairy closed, and in such case such dairy shall be kept closed until all the provisions of this article shall have been complied with and until all danger to the health of the public shall have been removed.

SEC. 11. Every person or corporation owning, keeping, or in possession, charge, or control of any cow stable or place where milch cows are stabled or kept in the city shall clean or cause to be cleaned such cow stable or place daily in a thorough manner and by such methods as shall be satisfactory to the commissioner of health.

Any person or corporation violating any of the provisions of this section shall be fined not less than \$5 nor more than \$100 for each offense.

SEC. 12. It shall be the duty of the chief food inspector (either in person or by one or more of the said inspectors) to visit, view, and inspect all places and vehicles in which milk and cream, or either of them, is sold, offered for sale, exposed for sale, stored, kept, exchanged, delivered, or disposed of, as well as to inspect, view, and examine all vessels, cans, receptacles, packages, refrigerators, or compartments of any store or building, platforms, establishments, or places of any kind containing milk or cream, and to ascertain or examine the condition thereof with reference to cleanliness and sanitation, and to cause the removal and abatement of any unfit, unclean, or injurious condition attending the keeping, storing, or possession, care, custody, or control of milk or cream at and in all places.

Any person or corporation failing, neglecting, delaying, or refusing to obey or conform to any reasonable order or direction under this section, made by the proper officer, or who in any way hinders said officer or inspectors, shall be fined not less than \$5 nor more than \$200 for each offense.

SEC. 13. The commissioner of health, the chief food inspector and any inspector or police officer authorized by the commissioner of health or the chief food inspector, shall have the right and power to enter and have full access to any building, structure, or premises where any milk and cream, or either of them, is stored or kept for sale, and shall have the right of access to all wagons, railroad cars, or other vehicles of any kind used for the conveyance or delivery of milk and cream, or either of them, and to any building, structure, or premises where he believes, or has reason to believe, milk and cream, or either of them, is stored and kept for sale, and shall have the right to take a sample of milk or cream from each milk can, vessel, or container which he may find in any such place, such samples not to exceed one-fourth of a pint each, for the purpose of inspecting, testing, or analyzing such samples. Such inspector or officer shall

inform the person from whom any such sample is taken that it is to be used for the purpose of such inspection, test, or analysis by the department of health and shall upon demand pay to such person the value of such sample.

The inspector or officer taking any such sample, upon request of the person from whom it is taken, shall at the same time and from the same milk can, vessel, or container take another such sample, and in the presence of the person from whom such sample is taken, properly identify each such sample by marking or sealing the same with a proper seal, subject to the approval of the commissioner of health, and shall leave one of such samples with such person.

Any person or corporation refusing to allow such right of entry or access, or refusing to allow such samples of milk and cream to be taken, or hindering or obstructing any inspector or officer in carrying out the power conferred by this section, shall be fined not less than \$1 nor more than \$100 for each offense.

Sec. 14. No person or corporation, licensed under this article, shall keep, sell, or offer for sale, convey or deliver, or have in his or its possession, charge, or control, any milk in the city, if such milk contains more than 88 per cent of watery fluids or less than 12 per cent of total solids or less than 3 per cent of butter fat.

Any person or corporation violating any of the provisions of this section shall be fined not less than \$5 nor more than \$200 for each offense.

Sec. 15. No person or corporation licensed under this article shall keep, sell, or offer for sale, convey or deliver, or have in his or its possession, charge or control, any cream in the city if such cream contains less than 15 per cent of butter fat.

Any person or corporation violating any of the provisions of this section shall be fined not less than \$5 nor more than \$200 for each offense.

Sec. 16. No person or corporation licensed under the provisions of this article shall sell or offer for sale in the city any milk from which the cream or any part thereof shall have been taken, unless such milk shall be offered for sale and sold by such person or corporation as skimmed milk; and no person or corporation shall have in his or its possession, charge or control, with intent to sell or offer for sale or deliver, any such milk from which the cream or any part thereof shall have been taken, unless the cans or other receptacles containing such milk shall have the entire outside thereof painted a bright red and kept so painted at all times while in use for such purpose, and unless such cans or other receptacles shall also have painted on the outside thereof, not less than 6 inches from the top of such cans or other receptacles, the words "skimmed milk" in plain black letters not less than 3 inches in height and 1 inch in width, on two sides thereof. No such person or corporation shall sell, offer for sale or deliver any skimmed milk containing less than $8\frac{5}{16}$ per cent of total solids other than butter fat or containing more than 1 per cent of butter fat.

Any person or corporation violating any of the provisions of this section shall be fined not less than \$5 nor more than \$200 for each offense.

Sec. 17. Any person who shall adulterate milk or cream or reduce or change it in any respect by the addition of water or any foreign or other substance or by the removal of cream therefrom, with a view of selling or offering the same for sale or exchange in the city after such adulteration or change, shall be fined not less than \$5 nor more than \$200 for each offense.

Sec. 18. Any person or corporation who shall in the city sell, offer for sale, or deliver or transport with intent to sell or offer for sale, or have in his or its care, custody, or possession, any milk or cream containing any coloring matter or any adulterants or preservatives, whether for the purpose of artificially increasing the quantity of milk or cream or for preserving the sweetness thereof, or for any purpose whatever, or any person or corporation, or any servant or agent of such person or corporation, who shall in the city sell or offer for sale for use in milk or cream, or have in his or its possession or control with the intent of so selling or offering for sale, any preservative, coloring

matter, or other adulterant, shall be fined not less than \$20 nor more than \$200 for each offense.

SEC. 19. If any cow be sick or diseased, the owner or person in charge thereof shall not sell, offer for sale, or expose for sale the milk or cream therefrom, but shall at once destroy such milk or cream.

Any such owner or person who shall violate any of the provisions of this section shall be fined not less than \$25 nor more than \$100 for each offense.

SEC. 20. No person or corporation shall sell or offer for sale or keep for sale any milk or cream drawn from any cow within 15 days before or one week after parturition of such cow, nor shall any person or corporation cause or permit any milk or cream drawn from any cow within either of the periods named to be mixed with any other milk or cream.

Any person or corporation violating any of the provisions of this section shall be fined not less than \$5 nor more than \$200 for each offense.

SEC. 21. No person or corporation shall keep or have in his or its possession any slops or refuse of any distillery, brewery, or vinegar factory, or any mash or refuse or food that has been subject to fermentation, for the purpose of feeding the same to any milch cow or cows.

Any person or corporation violating any of the provisions of this section shall be fined not less than \$10 nor more than \$100 for each offense.

SEC. 22. Whoever, by himself, or by his servant or agent, or as servant, agent, or employee of any other person or corporation, sells or offers for sale or exchange, or delivers or transports, or has in his custody, possession, or control, with intent to sell, offer for sale, exchange, or deliver in the city, any milk or cream or skimmed milk for human food, which is unclean, diluted, impure, unwholesome, adulterated, or not of the standard provided for by this article, or milk or cream or skimmed milk to which water or any foreign substance has been added, or any skimmed milk in violation of this article, or milk or cream produced from sick or diseased cows, or from cows kept in an unclean, filthy, or unhealthy condition, or from cows fed on the refuse or slops from distilleries, breweries, vinegar factories, or any slops, mash, refuse, or food that has been subject to fermentation; or milk or cream that has been exposed or contaminated, or affected by the discharges or exhalations from any human being or animal sick with any contagious or infectious disease, shall for a first offense be fined not less than \$5 nor more than \$100; and for each subsequent offense be fined not less than \$50 nor more than \$200.

SEC. 23. All milk and cream from sick or diseased cows, or cows fed on refuse or slops from distilleries, breweries, or vinegar factories, or on any mash or refuse, or food that has been subject to fermentation or that may affect or be detrimental to life or health, shall upon discovery thereof be confiscated, forfeited, and immediately destroyed by or under the direction of the commissioner of health, chief food inspector, or officer detailed for that purpose.

SEC. 24. No person or corporation shall manufacture, sell, or offer for sale in the city any condensed or evaporated milk for domestic use, unless the same shall be put up in packages or cans upon which shall be distinctly labelled or stamped the name or brand by whom or under which the same is made. Nor shall any person or corporation manufacture, sell, or offer for sale in the city any condensed or evaporated milk for domestic use, unless the same is manufactured from pure, fresh, unadulterated milk from which the cream has not been removed, or unless the proportion of milk solids and butter fat contained in the condensed or evaporated milk shall in amount be the equivalent of milk solids and butter fat as provided by this article.

Any person or corporation violating any provision of this section shall be fined not less than \$5 nor more than \$200 for each offense. Nothing herein shall be construed to prevent the addition of cane sugar in the manufacture of condensed or evaporated milk.

SEC. 25. Nothing in this article shall be so construed as to prohibit the use or sale of what is known as buttermilk, provided the same is produced from pure and wholesome milk. Should any such buttermilk, however, be sold or offered for sale in the city, or be in the custody or possession of any person or corporation in the city with the intent of selling or offering for sale the same, which is not the product of pure and wholesome milk, or which is impure or adulterated, such person or corporation shall be fined not less than \$5 nor more than \$200 for each offense.

SEC. 26. It shall be unlawful for any person, firm, or corporation to transport into the city of Chicago Heights, or to transport or deliver from point to point within said city, milk, cream, skim milk, or buttermilk for human consumption which is of a higher temperature than 60° F.: *Provided*, That after October 1, 1915, it shall be unlawful for any person, firm, or corporation to transport into the city of Chicago Heights, or to transport from point to point within the city, or to deliver any milk, cream, skim milk, or buttermilk for human consumption which is of a temperature higher than 55° F.

All milk, cream, skim milk, or buttermilk sold, offered for sale, exposed for sale or kept with the intention of selling, or used in the manufacture of ice cream, within the city of Chicago Heights shall be pasteurized in a manner as hereinafter provided, unless such milk, cream, skim milk, or buttermilk is of the kind or grade hereinafter defined as "inspected."

SEC. 27. "Inspected" milk, cream, skim milk, or buttermilk shall be produced in dairies that have been inspected and approved by the commissioner of health.

Any person, firm, or corporation producing and selling, or producing and offering for sale or for delivery in the city of Chicago Heights, or any person, firm, or corporation engaged in the bottling or receiving and handling in bulk of such milk, cream, skim milk, or buttermilk shall make a written application to the commissioner of health, stating the name and residence of the applicant and the location and description of the premises where such milk is to be produced, bottled, or handled.

The commissioner of health shall thereupon make, or cause to be made, an inspection of the premises, cows, and the milk produced, and the manner of handling the milk, cream, skim milk, or buttermilk, and if the same are found to comply with the requirements as hereinafter set forth he shall issue a permit allowing the milk, cream, skim milk, or buttermilk produced or handled on said premises to be brought into or sold in the city of Chicago Heights, conditioned that the person, firm, or corporation given such permit will report at once any and all sickness occurring in himself, or any or all persons residing or employed upon such premises, and will not ship into, deliver, sell, or offer for sale in the city of Chicago Heights or bring or deliver to any creamery or bottling plant supplying the city of Chicago Heights the milk, cream, skim milk, or buttermilk produced on said premises whenever a case of contagious or infectious disease is known or suspected of having occurred in himself or any or all other persons residing or employed upon said dairy farm, or in the families of any person or persons so employed, or in any dwelling in which said person or persons shall be domiciled.

Every such permit to produce inspected milk shall expire on the 30th day of June following the date of issue, and every such permit to bottle or handle in bulk inspected milk shall expire on the 31st day of December following its issue.

The commissioner of health, when it shall appear to his satisfaction that the provisions of this article have not been complied with, may at any time revoke such a permit by giving notice in writing.

"Inspected" milk, cream, skim milk, or buttermilk shall be produced and handled in accordance with the following regulations:

(a) It shall be produced on farms scoring not less than 65 on the following score card: *Provided, however*, That after January 1, 1916, farms on which inspected milk is produced shall score not less than 70 on this same score card:

SCORE CARD.

		Score.	
		Perfect.	Allowed.
EQUIPMENT.			
Cows:			
Condition.....		4	
Health (outward appearance).....		6	
Comfort.....		4	
Bedding.....	2		
Temperature of stable.....	1		
Protected yard.....	1		
Cubic feet of space per cow: Over 300, 2; over 400, 4; 500 to 1,000, 6.....		6	
Feed.....		4	
Water.....		8	
Clean.....	6		
Fresh.....	2		
Stable:			
Location.....		6	
Well drained.....	3		
Free from contaminating surroundings.....	3		
Construction.....		10	
Tight, sound floor.....	3		
Gutter.....	1		
Stall, stanchion tie.....	1		
Low-down manger.....	1		
Smooth, tight walls.....	1		
Smooth, tight ceiling.....	2		
Box stall.....	1		
Light: 1 square foot glass per cow, 2; 2 square feet, 4; 3 square feet, 6; 4 square feet, 8; even distribution, 2.....		10	
Ventilation: Sliding windows, 2; hinged at bottom, 4; King system or muslin curtain.....	8	8	
Stable yard (drainage).....		2	
Milk room:			
Location.....		6	
Convenience.....	2		
Free from contaminating surroundings.....	4		
Construction.....		4	
Floor.....	1.5		
Walls and ceiling.....	1		
Light.....	.5		
Ventilation.....	.5		
Screens.....	.5		
Arrangement.....		2	
Equipment.....		6	
Hot water or steam.....	2		
Cooler.....	2		
Narrow top milk pail.....	1		
Other utensils.....	1		
Water supply for utensils.....		10	
Clean.....	6		
Convenient.....	2		
Abundant.....	2		
Milking suits.....		4	
Total.....		100	
METHODS.			
Cows:			
Cleanliness.....		10	
Stable:			
Cleanliness.....		12	
Floor.....	4		
Walls.....	2		
Ceiling.....	2		
Ledges.....	1		
Mangers and partitions.....	1		
Windows.....	1		
No other animals in stable.....	1		
Stable air.....		4	
Removal of manure.....		4	
To field or proper pit.....	4		
30 feet from stable.....	2		
Cleanliness of stable yard.....		2	
Milk room:			
Cleanliness.....		6	
Care and cleanliness of utensils.....		10	
Inverted in pure air.....	2		
Clean (superficially).....	4		
Sterilized.....	4		

SCORE CARD—Continued.

		Score.	
		Perfect.	Allowed.
METHODS—continued.			
Milking:			
Cleanliness.....		14	
Clean, dry hands.....	4		
Udder washed and dried.....	10		
Cleaned with moist cloth.....	8		
Cleaned with dry cloth.....	4		
Care of milk:			
Cooling.....		20	
Removed from stable after milking each cow and promptly cooled.....	10		
Cooled to 50° F. or below.....	10		
51 to 55° F.....	8		
56 to 60° F.....	6		
Storing.....		8	
Below 50° F.....	8		
51 to 55° F.....	6		
56 to 60° F.....	4		
Transportation.....		10	
Iced in summer.....	10		
Jacket or wet blanket in summer.....	8		
Dry blanket.....	4		
Covered wagon.....	2		
Total.....		100	

Score of equipment..X1=.....

Methods.....X2=.....

Total divided by 3.= Final score.

(b) It shall be obtained from cows which have been certified by veterinarians authorized by the commissioner of health or by veterinarians appointed by the State or United States Government to be free from tuberculosis and other diseases not more than six months prior to the date that such milk is brought into the city: *Provided, however,* That time shall be given until June 30, 1916, for the filing of such certificates.

Animals known to be affected with tuberculosis or other infectious diseases shall not be kept in herds used for the production of inspected milk.

The cows yielding same must be kept clean, long hair must be clipped from the flanks, udder, and from the tail sufficiently to clear the ground. The cows shall not be fed on slops, refuse of any distillery or brewery, glucose, or any malt in a state of fermentation, putrefaction, or decomposition, or any other putrefying or unwholesome foodstuffs. Milk from cows 15 days before and 1 week after calving shall not be mixed with inspected milk.

(c) The milking must be done by milkers who are clean as to both clothing and person or by mechanical milkers operated by persons as above specified. When open milk pails are used, they shall have an opening at the top not more than 7 inches in diameter.

(d) All utensils, mechanical milkers, or other devices used in the production and handling of inspected milk must be properly cleaned and sterilized each time before using, and shall be so constructed that all parts are absolutely free from places where milk can accumulate or soak in so that it can not be removed by simple washing, and the surface coming in contact with the milk or cream must be smooth and free from excessive rust.

(e) All persons living upon farms where such milk is produced or employed thereon shall be free from contagious or infectious diseases, and resident or domiciled in places free from such diseases, and shall not be exposed to or come in contact with any person suffering with or having a contagious disease: *Provided,* That no person shall be employed or permitted to work on such farms unless and until it

shall have been demonstrated to the satisfaction of the commissioner of health of the city of Chicago Heights that said person is not a typhoid or diphtheria carrier.

It shall be the duty of every person, firm, or corporation producing inspected milk to notify the commissioner of health, at once, by mail, of the occurrence of any sickness in any person, or persons, living or employed on their farms where such milk is produced. Milk, cream, skim milk, or buttermilk produced on any farm or bottled or handled in bulk where a case of contagious or infectious disease has occurred, or if suspected to have occurred, shall not be shipped into, or delivered, sold, or offered for sale in the city of Chicago Heights or brought or delivered to any creamery or bottling plant supplying the city of Chicago Heights until the commissioner of health shall have been notified and shall have made an investigation and released such milk, cream, skim milk, or buttermilk for delivery in the city of Chicago Heights.

(f) The milk from each cow shall be removed from the stable immediately after it is obtained and shall then be strained and cooled at once to 60° F. or below. It shall then be kept at a temperature of 60° F. or below until delivered to the consumer: *Provided*, That after October 1, 1915, the temperature to which the milk must be cooled and at or below which it must be kept shall be 55° F.

(g) Inspected milk, cream, skim milk, or buttermilk exposed for sale, offered for sale, or sold to the consumer, shall be contained in tightly closed and capped bottles, or receptacles of a similar character.

(h) All milk, cream, skim milk, or buttermilk produced and handled in the manner required in section 27 of this ordinance shall be labeled "inspected milk," "inspected cream," "inspected skim milk," or "inspected buttermilk," as the case may be, in letters not less than $\frac{3}{16}$ of an inch high on the cap or cover of every package when contained in bottles or receptacles of a similar character, and not less than $\frac{1}{4}$ of an inch high on a tag attached to each container, when contained in cans. The serial number corresponding with the number of the permit given by the commissioner of health to the person, firm, or corporation producing such inspected milk, cream, skim milk, or buttermilk shall be plainly indicated in figures not less than $\frac{1}{4}$ of an inch on every case, can, or receptacle of a similar character in which such milk, cream, skim milk, or buttermilk is sent or brought into the city of Chicago Heights.

The cap or stopper of the bottles or receptacles of a similar character in which said inspected milk, cream, skim milk, or buttermilk shall be contained shall be plainly marked with the name of the day of the week upon which said milk, cream, skim milk, or buttermilk was first inclosed in bottles or receptacles of a similar character: *Provided*, That it shall be unlawful for any person, firm, or corporation to mark, cause to be marked, or permit to be marked upon any bottle or receptacle of similar character containing inspected milk, cream, skim milk, or buttermilk the name of any other day than that upon which the contents was first inclosed in bottles or containers of similar character.

(i) All inspected milk, cream, skim milk, or buttermilk sold, offered for sale, or kept with the intention of selling or brought into the city of Chicago Heights shall not yield more than a perceptible amount of sediment or stain other than that of natural butter fat when a pint sample of the same is filtered through a pledget of cotton 1 inch in diameter, and shall be entirely free from disease-producing bacteria and blood, pus, or other matter or things dangerous and detrimental to health.

Inspected milk and inspected skim milk shall not contain more than 100,000 bacteria per c. c. from October 1 to May 1, inclusive, and not more than 150,000 bacteria from May 2 to September 30, inclusive. Inspected cream shall not contain more than 150,000 bacteria per c. c. from October 1 to May 1, inclusive, and not more than 300,000 bacteria from May 2 to September 30, inclusive.

In the determination of the number of bacteria the culture media used shall be 1 per cent agar agar, having a reaction of plus 1.5 on Fuller's scale.

The quantity of culture media used shall be 10 c. c. per plate. The Petri dishes shall be 100 mm. in diameter.

The plate culture shall be incubated at a temperature of 37° C. for a period of two days. The Petri dishes selected for counting shall be those containing not less than 20 nor more than 200 colonies per plate.

SEC. 28. All milk, cream, skim milk, or buttermilk not complying with the requirements set forth for inspected milk in section 27 of this ordinance shall be produced, handled, and pasteurized in accordance with the following regulations:

(a) The said milk, cream, skim milk, or buttermilk shall be produced on farms scoring not less than 55 on the score card as described in paragraph *a* of section 27 of this ordinance.

(b) It shall be obtained from cows which, upon physical examination, are found to be free from disease. The cows shall be kept clean and shall not be fed on slops, refuse of any distillery or brewery, glucose, or any malt in a state of fermentation, or any other putrefying or unwholesome foodstuffs. Milk from cows 15 days before and one week after calving shall not be mixed with pasteurized milk.

(c) The milking must be done in a cleanly manner. When open milk pails are used they shall have an opening at the top not more than 7 inches in diameter.

(d) All utensils used in the production and handling of pasteurized milk must be properly cleaned and sterilized each time before using, and shall be so constructed that all parts are absolutely free from places where milk can accumulate or soak in so that it can not be removed by simple washing, and the surface coming in contact with the milk or cream must be smooth and free from excessive rust.

(e) All persons living upon farms where such milk is produced, or employed thereon, shall be free from contagious or infectious diseases, and resident or domiciled in places free from such diseases: *Provided*, That no person shall be employed or permitted to work who is known to be a "carrier" of an infectious or contagious disease.

(f) The milk from each cow shall be removed from the stable immediately after it is obtained, and shall then be strained and cooled at once to 60° F. or below, and kept at this temperature until pasteurized: *Provided*, That after October 1, 1915, the temperature to which the milk must be cooled, and at or below which it must be kept, shall be 55° F.

(g) All milk, cream, skim milk, or buttermilk required to be pasteurized shall not yield more than a perceptible amount of sediment or stain other than that of natural butter fat when a pint sample of the same is filtered through a pledget of cotton 1 inch in diameter, and shall be entirely free from disease-producing bacteria, and blood, pus, or other matter or things dangerous and detrimental to health.

Such milk and skim milk before pasteurization shall not contain more than 750,000 bacteria per c.c. from October 1 to May 1, inclusive, and not more than 1,000,000 bacteria per c. c. from May 2 to September 30, inclusive.

Such cream shall not contain more than 800,000 bacteria per c. c. from October 1 to May 1, inclusive, and not more than 1,500,000 bacteria from May 2 to September 30, inclusive.

(h) Every person, firm, or corporation installing or operating a pasteurizer for the purpose of pasteurizing or treating milk, cream, skim milk, or buttermilk to be sold, offered for sale, or kept with the intention of selling, or for the pasteurization or treatment of milk, cream, skim milk, or buttermilk to be shipped or brought into the city of Chicago Heights, shall notify the commissioner of health in writing, stating the time when and the place where such pasteurizer is to be installed, together with the name of the person or persons who will operate said pasteurizer, and shall file with said commissioner of health the names of the owners and the location of all farms from which the milk that is to be pasteurized at said plant is obtained.

The commissioner of health shall thereupon make, or cause to be made, an inspection of such pasteurizer and the premises or plant wherein the same is operated. He shall

also inspect or cause to be inspected all farms the milk supply of which, after pasteurization at said plant, is sold or intended for sale or brought into the city of Chicago Heights with the intention of selling for human consumption; and no such farms shall be allowed to bring or furnish milk or cream to said pasteurizing plant without first being inspected and found to comply with the requirements of section 28 of this ordinance.

It shall be unlawful for any person, firm, or corporation operating such a pasteurizer or pasteurizing plant to receive milk or cream from any farm which has not been inspected and passed by the commissioner of health.

If all of the foregoing provisions have been complied with, and the pasteurizer or pasteurizing equipment is such that 99 per cent of all bacteria and all pathogenic bacteria are killed in the milk treated therein at the temperature required in paragraphs *j* and *l* of section 28 of this ordinance, the commissioner of health shall issue a permit allowing the milk, cream, skim milk, or buttermilk pasteurized in such pasteurizer and on such premises to be brought into or sold in the city of Chicago Heights. Every such permit shall expire on the 30th day of June following the date of issue.

The commissioner of health may withdraw his approval by serving notice in writing when any such pasteurizer or pasteurizing plant is not operated in accordance with the provisions of this ordinance or when the milk received thereat or pasteurized therein is obtained from farms that do not comply with the requirements as set forth in section 28 of this ordinance or from farms which have not been inspected and found to comply with said requirements by the commissioner of health.

In case of dispute in regard to tests made of such pasteurizer or pasteurizing equipment or in regard to the temperature to which the milk shall be heated, the person, firm, or corporation making application to operate a pasteurizer may make application to the commissioner of health to have the said pasteurizer or pasteurizing equipment reinspected. Such reinspecting or retesting shall be done by one person designated by the commissioner of health and another by the person, firm, or corporation owning or operating said pasteurizer, and in case of failure or inability to agree the two to select a third.

(i) In all continuous pasteurization the milk and cream shall be heated to a temperature which shall be determined and fixed by the commissioner of health for each machine at a point corresponding to a temperature required to kill 99 per cent of the bacteria and all pathogenic bacteria contained in the raw product and shall show no colon bacilli in 1 c. c. as determined by cultural methods.

All continuous pasteurizers shall be equipped with feeding pipe which is so constructed that the pasteurizer can not be fed in excess of its normal working capacity; that is, in excess of the working capacity of the machine at which 99 per cent of the bacteria are killed when the required amount of heat is applied.

A recording apparatus shall be installed upon all pasteurizers to record during operation the temperature of the pasteurized product as it flows from the heater. The thermometer of this recording apparatus must be accurate and kept submerged in the milk in such a way that it is not exposed to escaping steam or other heat, except the heated milk: *Provided*, That if the pasteurizing is done in bottles or in other final containers, the temperature recording apparatus must be attached and adjusted in a manner so as to accurately record the temperature to which the milk, cream, skim milk, or buttermilk is raised and the duration of time for which said temperature is maintained.

The records made by this recording thermometer must be accurate and made in a chamber which is kept under lock and key in the control of the commissioner of health.

The mechanism of the pasteurizer or pasteurizing system shall be such that the three important elements, namely, the temperature, time of exposure, and the quantity

of milk exposed at one time can be readily kept under control and observation by the commissioner of health.

(j) The following conditions as to degrees of heat and time of exposure shall be complied with:

A uniform heating of 140° F. for 20 minutes, or 150° F. maintained for 15 minutes, or 155° F. for 5 minutes, or 160° F. maintained for 1½ minutes, or 165° F. maintained for 1 minute. The time shall be calculated from the period that the entire quantity reaches the required temperature.

(k) All milk, cream, skim milk or buttermilk produced and handled in the manner required in section 28 of this ordinance shall be labeled "pasteurized milk," "pasteurized cream," "pasteurized skim milk," or "pasteurized buttermilk," as the case may be, in letters not less than $\frac{1}{16}$ of an inch high on the cap or cover of every package, when contained in bottles or receptacles of similar character, and not less than $\frac{1}{8}$ of an inch high on a tag attached to each container, when contained in cans, together with a serial number corresponding with the number of the permit given by the commissioner of health, to the person, firm, or corporation for the pasteurizer or plant pasteurizing said milk, cream, skim milk, or buttermilk, and the cap or stopper of the bottles or receptacles of a similar character in which said pasteurized milk, cream, skim milk, or buttermilk shall be contained shall be plainly marked with the name of the day of the week upon which said milk, cream, skim milk, or buttermilk inclosed in said bottles or receptacles of a similar character was pasteurized: *Provided:* That it shall be unlawful for any person, firm, or corporation to mark, cause to be marked, or permit to be marked upon any bottle or receptacle of similar character containing pasteurized milk, cream, skim milk, or buttermilk the name of any other day than that upon which the contents inclosed in bottles or containers of similar character was pasteurized.

(l) After January 1, 1916, all milk, cream, skim milk, or buttermilk, which is not of the grade or kind defined in this section as "inspected" shall be pasteurized at a temperature of not less than 140° F. for not less than 20 minutes or not less than 155° F. for less than 5 minutes.

(m) The pasteurized product shall be cooled at once to a temperature of 45° F. or below. This cooling shall be so conducted that the pasteurized product is not exposed to possible sources of contamination. This cooling apparatus shall be so constructed that it can be readily cleaned and sterilized.

Milk, cream, or skim milk shall be inclosed in tightly capped bottles or packages of a similar character, or in sealed cans immediately after pasteurization.

Pasteurized milk, cream, skim milk, or buttermilk shall be kept at a temperature of 50° F. or below while the same is stored or kept at a pasteurizing plant, bottling establishment, or milk depot.

Pasteurized milk, cream, skim milk, or buttermilk, exposed for sale, offered for sale, or sold to the consumer, shall be contained in tightly closed and capped bottles or receptacles of a similar character.

Pasteurized milk and skim milk shall not contain more than 50,000 bacteria per c. c. from October 1 to May 1, inclusive, and not more than 100,000 bacteria per c. c. from May 2 to September 30, inclusive. Pasteurized cream shall not contain more than 150,000 bacteria per c. c. from October 1 to May 1, inclusive, and not more than 300,000 bacteria per c. c. from May 2 to September 30, inclusive, and shall not contain colon bacilli in 1 c. c. as determined by cultural methods.

In the determination of the number of bacteria the culture media used shall be 1 per cent agar agar, having a reaction of plus 1.5 on the Fuller scale.

The quantity of culture media used shall be 10 c. c. per plate. The Petri dishes shall be 100 millimeters in diameter.

The plate cultures shall be incubated at a temperature of 37° C. for a period of two days.

The Petri dishes selected for counting shall be those containing not less than 20 nor more than 200 colonies per plate.

(n) Milk, cream, skim milk, or buttermilk, which has been pasteurized and held for a period of 12 hours or more after such pasteurization shall not be repasteurized or reheated for the purpose of enhancing and keeping qualities of such milk, cream, skim milk, or buttermilk.

Sec. 29. Every person, firm, or corporation violating any of the provisions of the foregoing section shall be fined not less than \$5 nor more than \$200 for each and every offense: *Provided, however,* That whenever the commissioner of health of the city of Chicago Heights shall discover that any person, firm, or corporation has violated any of the provisions of the foregoing sections, said commissioner shall within 10 days from the date of such discovery, before suit is commenced, notify in writing the person, firm, or corporation guilty of such violation that said violation has occurred, said notice to state the particular provisions of the foregoing section or sections that have been violated. All milk, cream, skim milk, or buttermilk brought into the city of Chicago Heights, or sold, offered for sale, or kept with the intention of selling, or of using in the manufacture of ice cream which does not comply with the requirements as set forth in the foregoing section, or with the standards therein set forth, shall be condemned by the commissioner of health and rendered unfit for human food by coloring or otherwise treating, or shall be condemned, seized, and destroyed: *Provided,* That if in the opinion of the commissioner of health it is proper to do so the said milk, cream, skim milk, or buttermilk may be tagged as follows: "Condemned, commissioner of health, Chicago Heights," and returned to the shipper or producer.